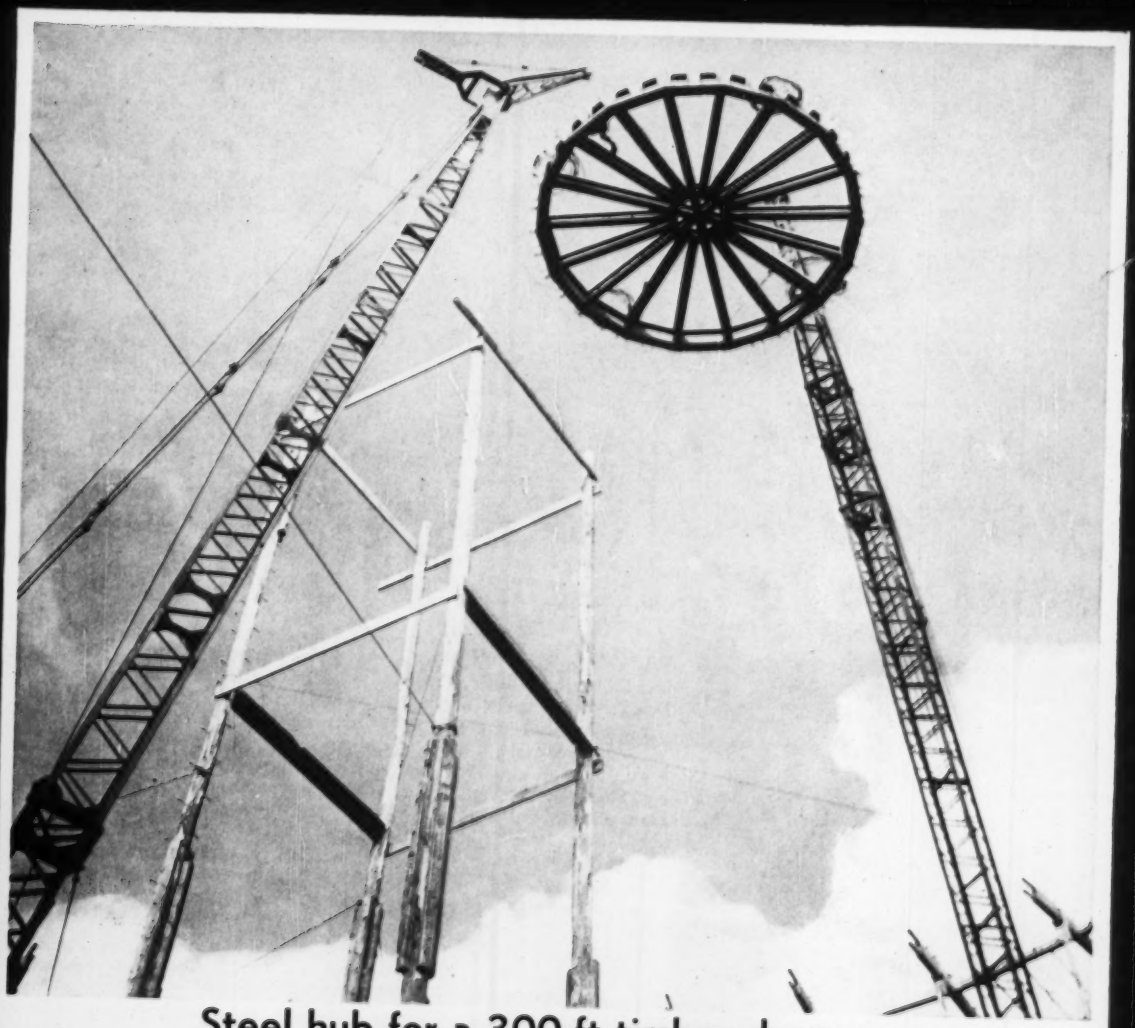
ENGINEERING NEWS-RECORD



Steel hub for a 300-ft timber dome p. 32

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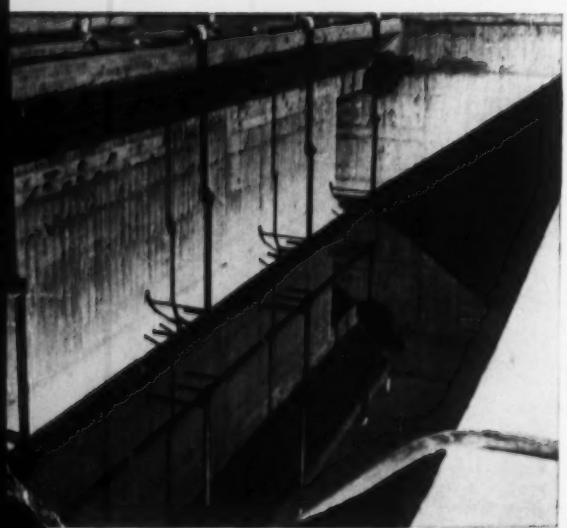
The Columbus, Ohio, Sewage Treatment Plant relies on wrought iron pipe's protective properties in tough, corrosive service

21-year service record provides good reference for Wrought Iron Pipe railing job here



View of wrought iron air diffuser piping in Columbus, Ohio's Sewage Treatment Plant

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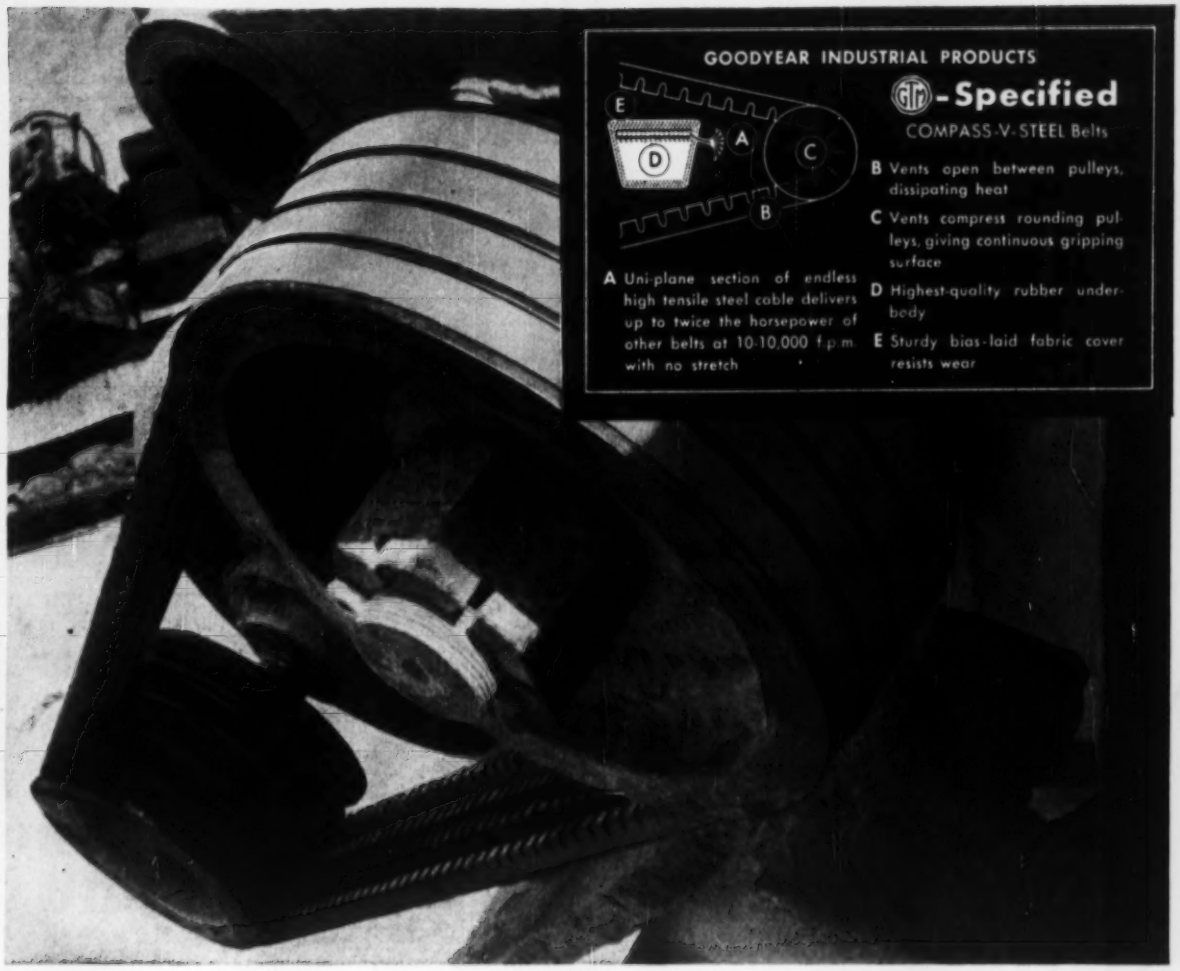
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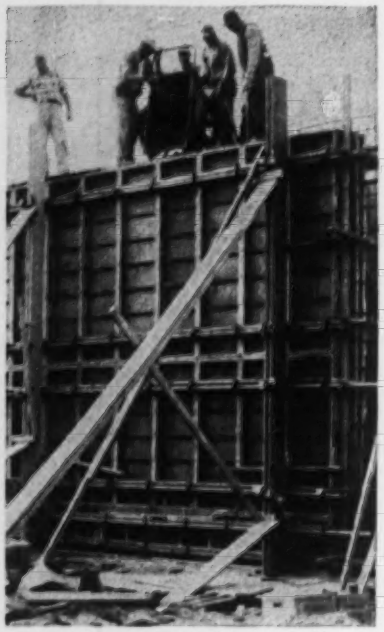

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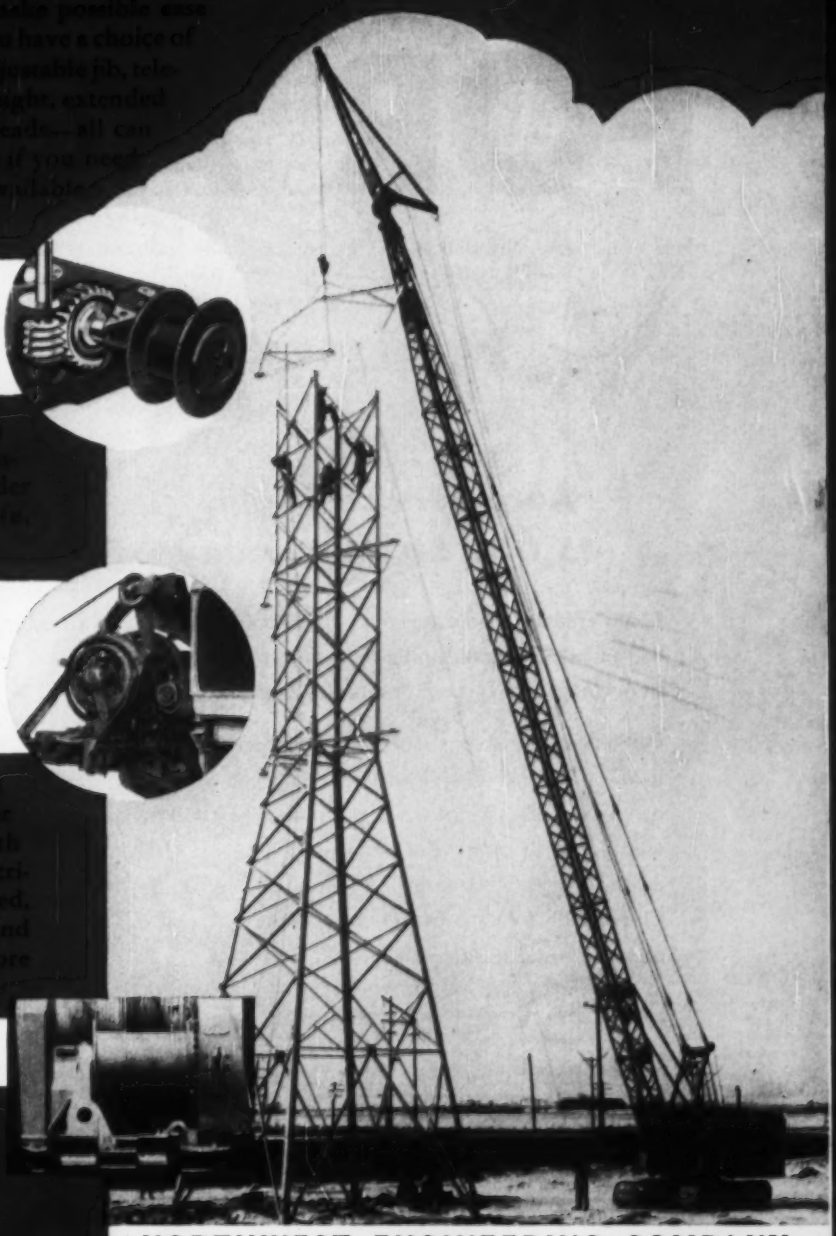

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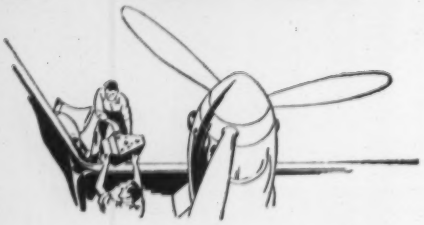

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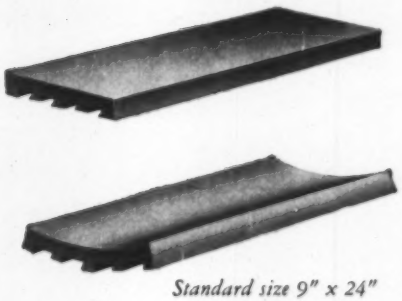

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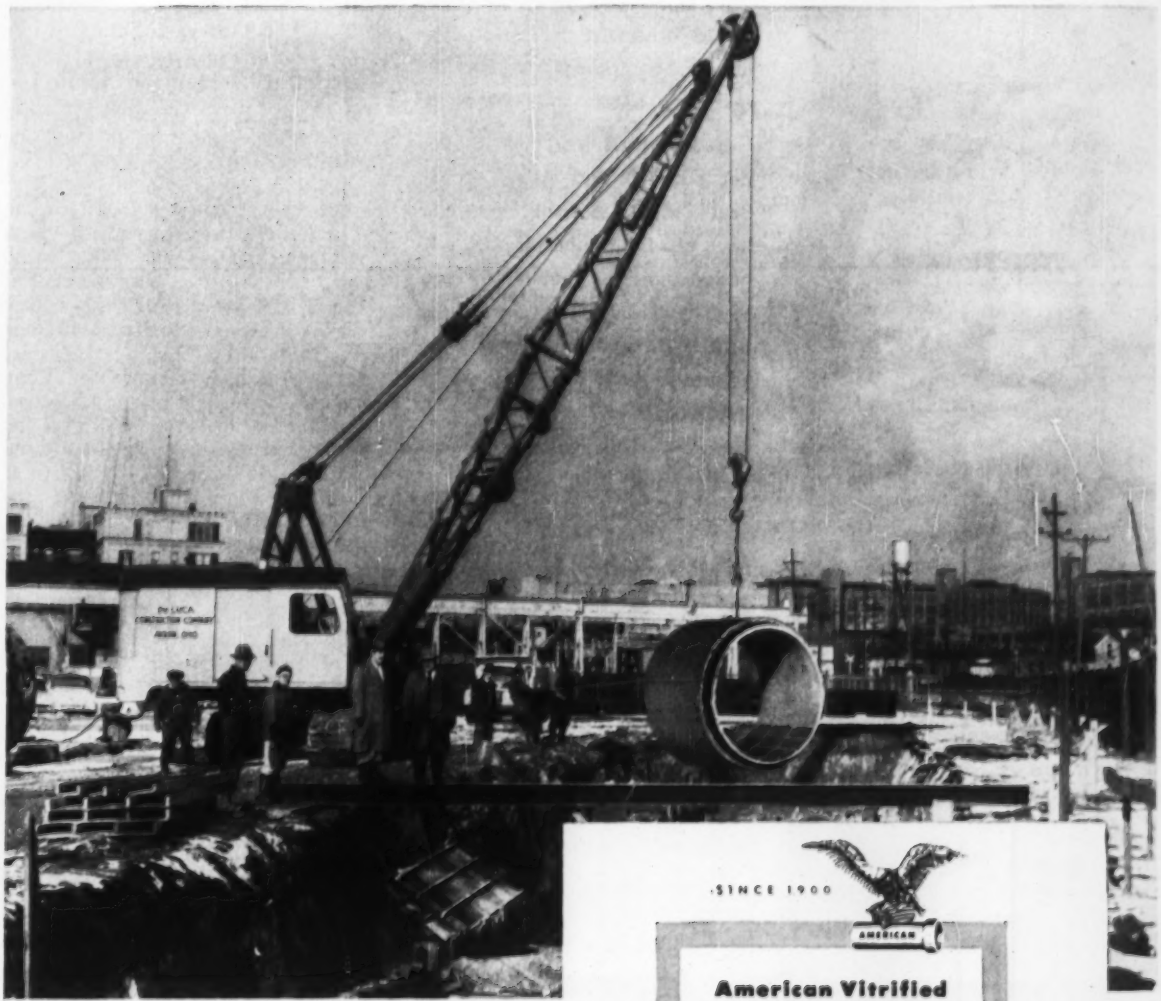

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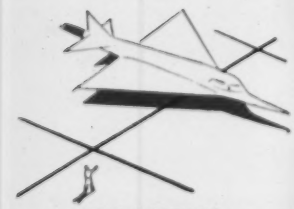

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Reader Comment

Shortage at a Price?

SIR—I read with interest "Shopping Abroad for Engineers", in the Nov. 22 issue of Engineering News-Record.

We have here an opportunity to obtain a clear economic rating on the engineer shortage.

It is my suggestion that an inquiry be made regarding the pay which is to be offered these Filipino engineers; if it is lower than the United States' going rate it would indicate that a shortage exists here for cheaper engineers; if greater, than we "troops" would know that the shortage is true.

FRANCIS G. YATES
(Born in Manila)
Colorado Springs, Colo.

Hurricane Protection Timing

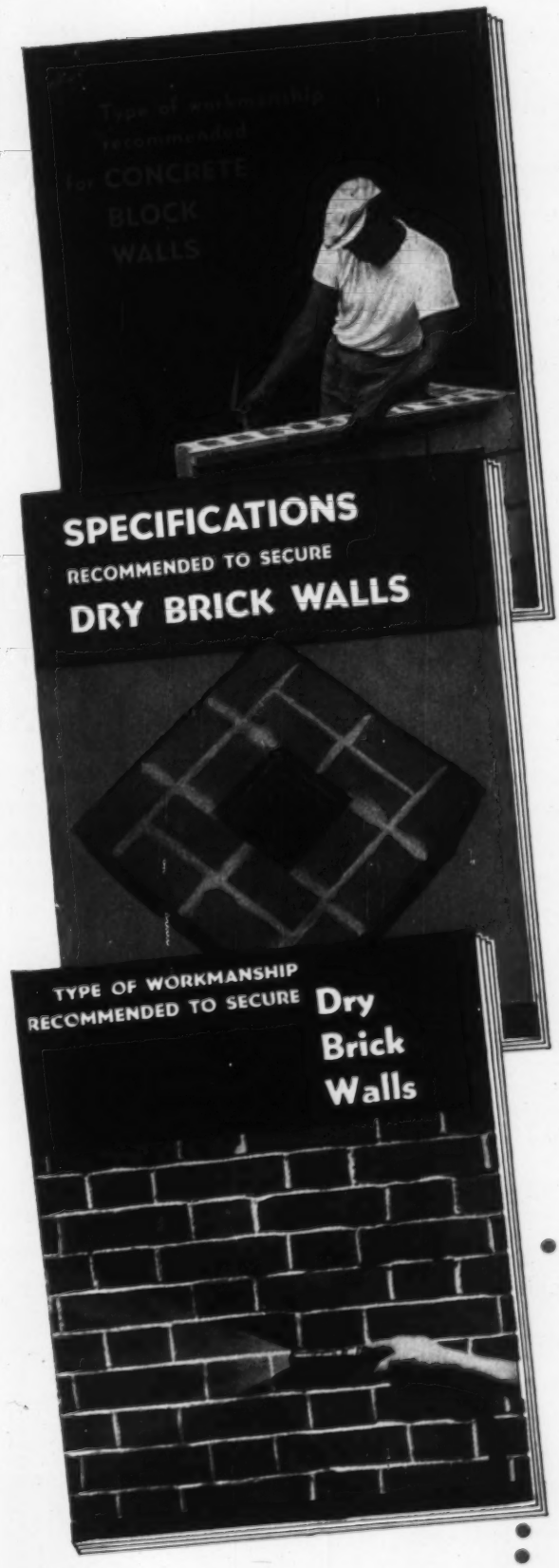
SIR—The article on the Hampton Roads Bridge-Tunnel (ENR Nov. 29, 1956) contains a few incorrect statements.

On page 35 it states that the storm in June, 1955, demonstrated that hurrican protection on the South Island which is exposed to open Atlantic surf (this is incorrect) was not heavy enough and the next sentence describes certain damage that occurred. The damage described occurred during the storm of April 11, 1956, at a time when construction of the protection was far from complete. The hazard from storms occurring during construction has always been recognized.

Contrary to what is stated in the article, the change in the design of the hurricane protection for the South Island and the decision to install portal gates in the tunnel were made months before the occurrence of the damage described in the article. The original protection was designed early in 1954 on the basis of all previous storm records. Following that, three hurricanes in 1954 and three more hurricanes in 1955 passed close to the site of the work. None of these hurricanes resulted in maximum wind and tide conditions in Hampton Roads but we began to think about what would happen

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



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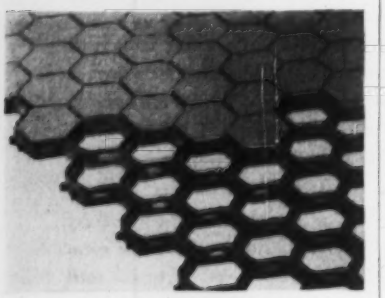

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if the direction and intensity of the storm should be such that the tides and wave action reached a theoretical maximum.

In August and September of 1955 we initiated an extensive study of potential hurricane damage and found that winds and waves considerably in excess of those ever experienced in Hampton Roads are possible. The result was the addition of the portal tide gates at the ends of the Tunnel and the expenditure of more than $1 million on additional protection to the South Portal Island.

No storm or hurricane equal to that envisioned in the new design for the protection has ever been experienced in the Hampton Roads area. In fact, no storm or hurricane has yet occurred which has exceeded that envisioned in the original design. Curiously enough, the storm of April 11, 1956, which was not designated as a hurricane, resulted in tides that were higher and wave action that was more severe than any of the hurricanes of 1954 and 1955. The damage occurred because the installation of the protection was far from complete; it did not demonstrate that the original protection was inadequate.

At the close of the article it is stated that the opening of the bay crossing portion could have been accomplished had the Hampton and Newmarket Creek Bridges been on schedule. The controlling factor in the opening of the crossing is the completion of the tunnel and the open approaches on the portal islands. It is presently anticipated that the Bridge-Tunnel will be opened on Nov. 1, 1957, which is the opening date established more than two years ago when the project was financed. At one time it was hoped that completion might be achieved about two to three months earlier but the additional work required at the South Portal Island has precluded that possibility for some time. Thus it appears that the title of the article is inaccurate.

M. N. Quade, *Partner*
Parsons, Brinckerhoff, Hall & Macdonald

One Reader's Opinions

Sir—Your editorials on the so-called "Shortage of Engineers" inspire the following comments:

1—They are preferential debates.

2—You do not recognize the value of experience.

3—You do not recognize the necessity of several years apprenticeship in the drafting room at the completion of school.

4—You do not recognize as capable, professionally, the engineer who has attained his skill and proficiency in all branches of engineering through the help of correspondence schools.

5—You do not consider that the licensing of engineers is a device of the college mills to create a shortage in order to stimulate mass education.

6—You do not recognize that the drafting room is the workshop of the engineer wherein the scientist has no place. If one has no ability to read a plan correctly he cannot, by any stretch of the imagination, be of any value in the drafting room—and worse on construction work.

Joseph A. Roy
St. Petersburg, Fla.

Editor's Note—Mr. Roy's comments are indeed "inspired" since we have never doubted the value of experience, apprenticeship in the drafting room or correspondence school studies. And while we have never before heard the belief expressed that "the licensing of engineers is a device of the college mills to create a shortage in order to stimulate mass education" we would label it as completely absurd.

CALENDAR

Society of Plastics Engineers, Inc., 13th Annual National Technical Conference, Hotel Sheraton-Jefferson, St. Louis, Mo., Jan. 16-18.

Engineers Joint Council, Third Annual Assembly, Jan. 17-18, with Assembly Dinner evening of 17th. Reservations: EJC, 29 W. 39 St., N.Y.C. Place: Hotel Statler, N.Y.C.

National Association of Home Builders, annual convention and exposition, Hotel Sherman, Hotel Conrad Hilton and Coliseum, Chicago, Ill., Jan. 20-24.

Associated Equipment Distributors, 38th annual meeting, Conrad Hilton Hotel, Chicago, Jan. 27-30.

American Road Builders Association, annual meeting and road show, Chicago Amphitheater, Jan. 28-Feb. 2.

Reinforced Plastics Div., Society of the Plastics Industry, Inc., 12th Annual Technical and Management Conference, Edgewater Beach Hotel, Chicago, Ill., Feb. 5-7.

Eastern Snow Conference, 14th annual meeting, Onondaga Hotel, Syracuse, N. Y., Feb. 7-8.

American Concrete Institute, 53rd annual convention, Statler-Hilton Hotel, Dallas, Tex., Feb. 25-28.

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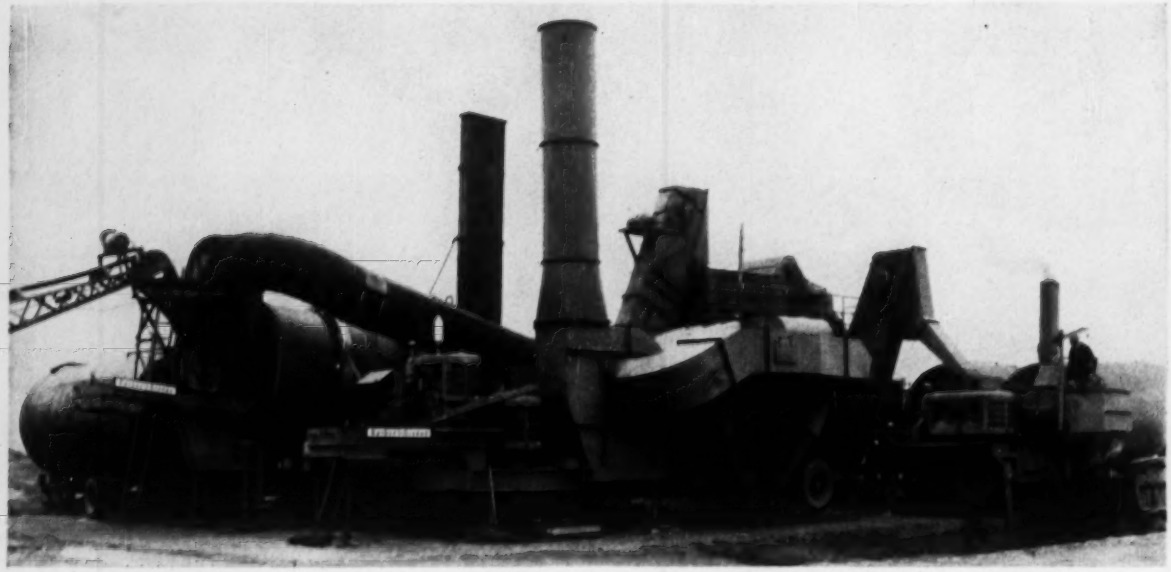

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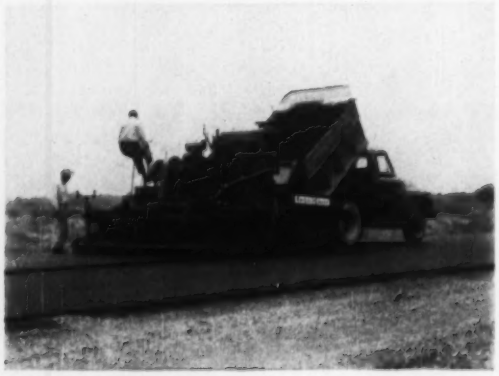

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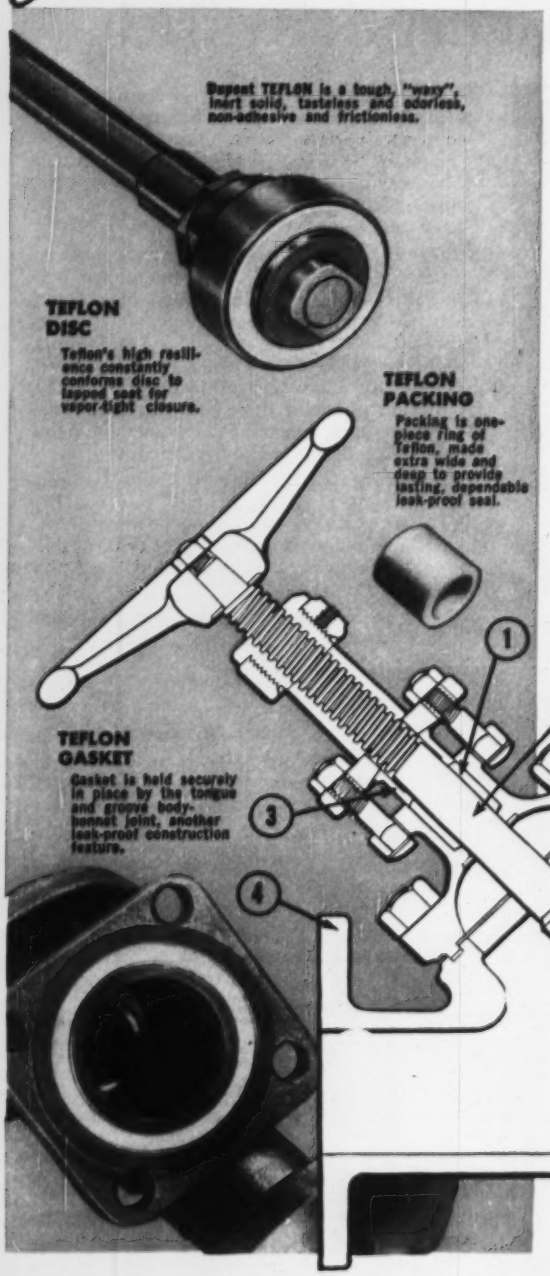
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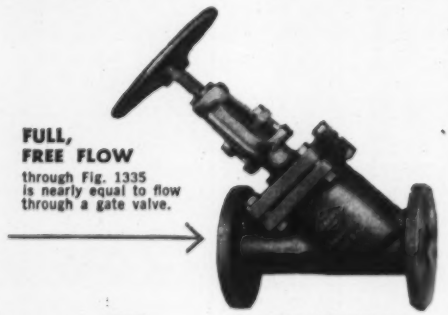

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THE CONSTRUCTION WEEK

RECRUITING RIGHT IN CITY HALL—The City of Detroit, determined not to be left behind by high-pressure industries in the race for engineers, went all out last week to convince engineering students that a bright future awaited them in municipal government. Nearly 200 embryo engineers from Michigan colleges and universities were given red-carpet treatment at an open house in Detroit's new city-county building. Veteran engineers from the Public Works Department took the youngsters in tow and conducted them through up-to-the-minute exhibits of various city projects; to a luncheon that featured films and slides on city improvements; and finally to an audience with Mayor Cobo. The mayor told the students: "Detroit is spending $688 million on capital improvements. All . . . require competent engineers."

DIVERSION HELPS—Mississippi River stage at St. Louis was minus 2.3 ft early this week. This stage, say the Army Engineers, is about a foot higher than it might have been without the temporarily authorized additional flow from Lake Michigan. Depth at Alton Lock is at 8 ft and it is expected that this level will be held through January. If the additional flow is cut off Jan. 31, as stipulated in the court order that authorized it (ENR Dec. 27, 1956 p. 21), stage could drop to minus 4.5 in early February. Need for rain persists throughout the Midwest area, but it looks like a serious crisis has been avoided this winter.

NO LONGER PIKE—Opponents of extending Florida's turnpike—first section of which is scheduled to open Jan. 25—have served notice they will work for repeal of the 1955 legislation authorizing the road northward from Ft. Pierce—the present terminus—to Jacksonville.

The reason isn't hard to find since objection centers around Jacksonville itself: The city is now working on a $70-million freeway system based on a newly completed toll bridge to thread traffic through the area. But the northward turnpike extension would bypass Jacksonville completely, taking potential toll-payers out of town.

TOLLS, ANYONE?—Undismayed by the current dubious performance of tollroads and difficulties experienced by other states in selling bonds, Maryland will go ahead with a $76-million toll highway. That's the word from Gov. Theordore McKeldin, who settled a long-standing discussion over his state's proposed Northeast Expressway from Baltimore to the Delaware line—by saying the project would be financed as a toll facility. McKeldin answered state legislators—who accused his State Roads Commission of dragging its feet on the project—by saying that reason for delay in building the 54-mile expressway was depressed conditions in the bond market.

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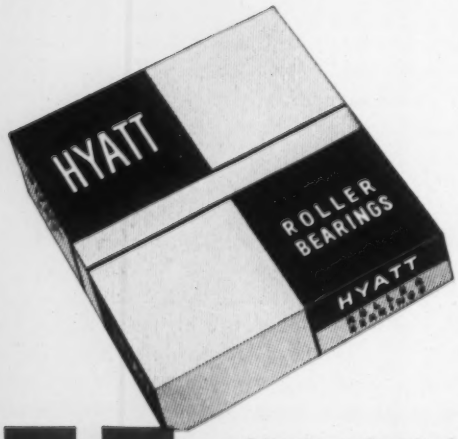

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WASHINGTON OBSERVER

Congressional interest in all phases of the multi-billion highway program showed immediately this week as hearings got under way before the Senate public works road subcommittee. Top Administration officials—Secretary Weeks, interim Highway Administrator John Volpe, top Bureau of Public Roads officials—all were on hand. State highway officials were questioned, so were roadbuilders.

Republican and Democratic senators alike want information that they feel has become available since the law was approved last June. Their interest—which will show in frequent hearings during the coming months—goes right across the board: Davis-Bacon, rights-of-way, extra mileage for the interstate network, access roads, shortages of materials and manpower, relocation of routes, state of the highway trust fund, reason for some states lagging in their program.

•

Administrator Volpe is meeting with officials of states that have failed to get their programs under way swiftly enough. Among them: Nebraska and West Virginia.

Sen. Gore asked for—and got—a report on the reasons why these and other states have failed to keep up.

Volpe reports that 21 states have obligated more than half of their total 1957 apportionment from the Bureau of Public Roads for all federal aid highways. Six of these have used all their '57 funds, and begun on '58.

Already, 743 miles of the interstate program costing $901 million has been committed. Of this, $286 million covering 496 miles has actually been put under construction contracts.

For three years ending June 30, 1958, $3.7 billion has been apportioned to the states; that's the total estimated to be available from the trust fund. Interstate network share: $2.7 billion.

Weeks and Volpe say the program is well started: For the first time ever, all the money authorized for allocation to states for a fiscal year will have been obligated by the states by the year's end. Senators on the committee aren't quite so impressed; they emphasize the lag between allocating or obligating funds and actual turning of dirt.

•

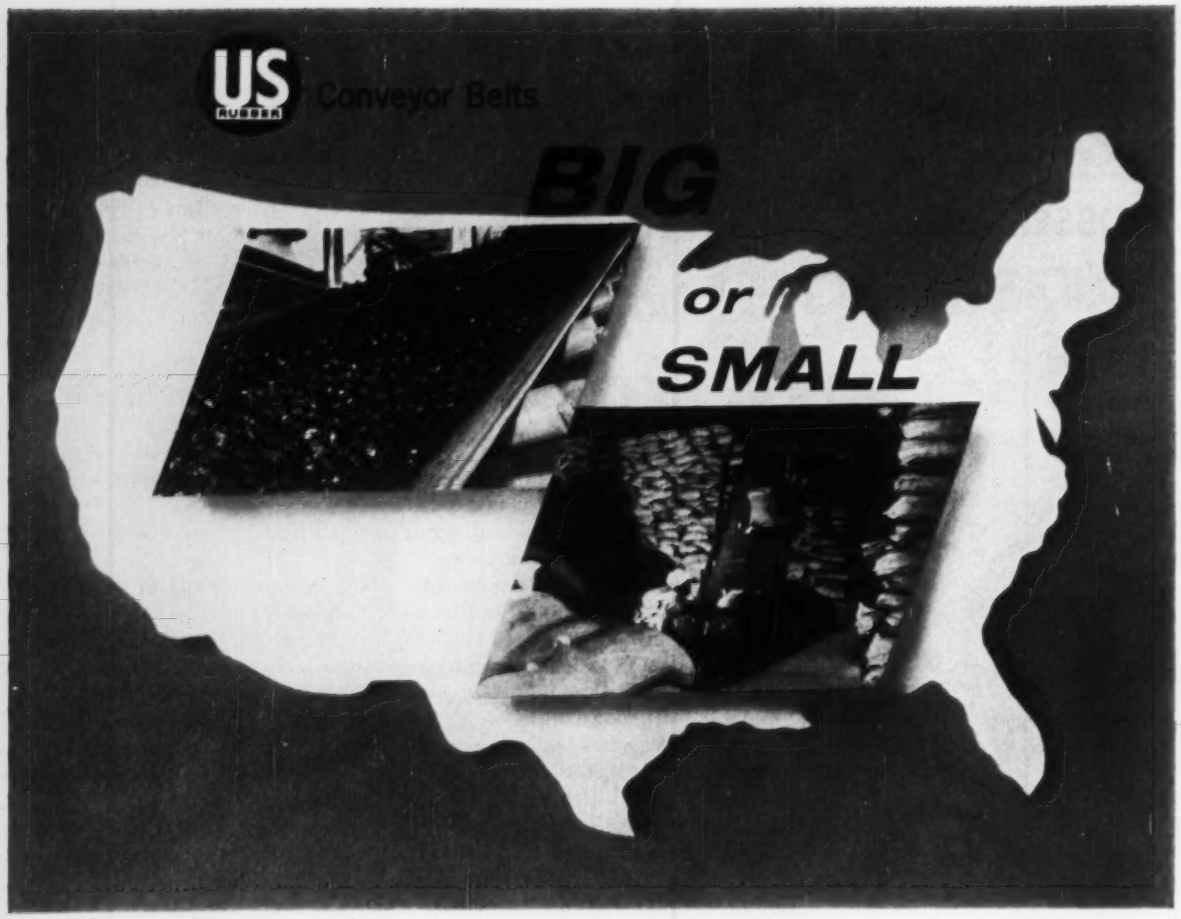
The committee will get detailed answers to dozens of questions involving almost every section of the law they passed.

The situation as to supply and demand for materials and engineers was one of the first to get attention—and the committee pressed Volpe for precise information on such materials as steel and cement. Volpe assured Congress that contractors had the manpower to meet any possible construction schedule now foreseen.

Application of Davis-Bacon minimum wages on interstate mileage will be investigated. Of the rates fixed, Department of Labor in 9 out of 10 cases has used the minimums already in effect in the state. But Senator Case wants to bring in contractors for their view on how Secretary Mitchell is handling this role of fixing minimums.

Senators Kerr and Gore want a report on highway mileage that is not now in the interstate system, but is equally important from the viewpoint of traffic carried. The states have asked that an additional total of 12,000 miles be added to the presently authorized 41,000-mile system. Kerr and Gore want to know how much of this—if any—should be added.

Obviously, congressmen are going to take a long look at all phases of the program they authorized. Hearings, reports, investigations will be coming frequently all during the coming months from both the Senate and Cong. Fallon's House public roads subcommittee.



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THE 85TH CONGRESS WILL . . .

- **Put the spotlight on the administration of the highway program.**
- **Top last year's $5.3 billion that was voted for federal construction.**
- **Try to approve federal aid for school construction.**
- **Make a strong move to ease credit restrictions on private housing.**
- **Probably force a modification of the Administration's partnership stand.**

Another Big Year of Federal Spending

The 85th Congress getting under way this week has no dramatic construction program to enact—nothing to compare with last year's multi-billion-dollar highway program and multi-million-dollar Upper Colorado storage project.

But Congress will be voting many construction measures nevertheless—and particularly will it be voting the funds that during the year beginning next June will boost construction spending above the estimated $5.3 billion of federal spending in the current year.

• **Federal highway setup**—Action was launched on a number of areas before Congress had completed organization. Committees had not been fully set up when a Senate public works subcommittee on highways began hearings on administration of the super highway program. Sen. Albert Gore (D., Tenn.) called in Commerce Department and Bureau of Public Roads officials before his committee on Monday (Jan. 7) to give an accounting of their stewardship.

If the three-day hearings provide Gore with any evidence that the program has lagged, he will renew an earlier drive to remove BPR from the Commerce Department. Gore wants to establish the bureau as an independent agency with members appointed by Congress rather than the President. But such a move would run into opposition on Capitol Hill.

• **Money for river work**—There will be a shift in the timing of rivers and harbors and flood control legislation. There was no omnibus authorization last year as result of a Presidential veto near the end of the session. The veto was based, not so much on specific opposition to particular projects, but on the fact that some 32 projects representing a half-billion dollars were approved by Congress without the final reports from the agencies involved.

The Public Works Committees in both branches are expected to begin moving early so that they can clear the authorizations before the appropriations committees act on money requests. The idea would be to vote both the authorization and appropriation at this session, so that actually no time will be lost in beginning construction.

The committees will use as a basic bill, the $1.5-billion omnibus measure, covering some 75 projects. These include the $219-million lower Mississippi River flood control project, the $25-million Baltimore harbor and channel project and others. Chances are that not many, if any, new projects will be included.

• **School aid**—Biggest money amounts will be involved in the school construction legislation that will be pushed hard by the White House. It would call for federal grants at rate of $250 million a year for four years, plus a federal purchase of school district bonds, which would amount to $750 million over a four-year period. On top of that the federal government would be asked to set up a revolving fund to enable the states to build and lease school buildings to local school districts.

But the bill has the same clouds hanging over it that blocked passage last year. Rep. Adam Clayton Powell, New York Democrat, is all set to introduce his rider that would block federal funds to any state that fails to integrate its schools.

Action on school construction will start in the House because the Senate doesn't want to act until it knows what kind of a bill will come out of the House—if any. Despite Administration backing for the legislation, for various reasons—there is still much opposition—big states vs. small states, parochial school aid, poor states vs. wealthy states, federal control vs. state control. A segregation rider would likely weld all factions together with the result it would be apt to suffer the same fate as it did last session when the House sent it back to committee.

• **Easier credit for housing**—There is no major housing legislation in sight, but there will be action on credit—providing more funds for purchase of FHA and VA mortgages by Fannie Mae and moves to ease the housing credit squeeze. No public housing authorization is needed since last year's law provided for 35,000 units for fiscal 1958.

Fannie Mae will exhaust its present $1-billion line of credit at the Treasury Department by March so that the Administration is expected to ask Congress for more money for mortgage purchase and at same time seek an adjustment in Fannnie Mae's mortgage ceiling, now set at ten times capital and surplus.

There will be activity by both the Democrats and the Administration relating to the problem of easing the tight money market in housing. The Administration will ask Congress to increase the interest rate on GI loans from 4½% to 5% to shake loose more money for veterans. If veterans organizations back this approach, Congress may go along. But Sen. Hubert Humphrey and Rep. Wright Patman will

The Stage Is Set . . .

Highways—Although no specific legislative action is foreseen, the drive to create a separate agency to administer the "grand plan" will be renewed. Congress this year will be interested mostly in finding out and airing what the Administration has done to get the $37-billion program rolling.

Homebuilding—Republicans will be under fire for "allowing" starts to drop. Congress will oppose higher VA interest rates; may favor direct loans to veterans or liberalize FHA to take care of this.

Lease-purchase—The near-failure of the $700-million lease-purchase construction program will be under querulous Congressional eyes. And although new legislation may not be voted, something's got to give.

Water resources—Administration will ask for centralized administration and policy for all water programs—power, flood control, navigation, water supply, pollution control, navigation and research. Political heat intensified by drought makes legislation along these lines likely.

Partnership—Four big jobs are on the block. Congress will debate who is to pay for the $310-million John Day Dam, a high dam at Pleasant Valley on the Snake River, power facilities for the Trinity River in California and the $156-million Frying Pan-Arkansas diversion project.

Reclamation—The big issue is whether to use power revenues from all federal dams in the Columbia Basin to subsidize irrigation projects that otherwise would not be economically feasible. This is done now in the Missouri River basin, and if adopted on the Columbia would mean hundreds of millions worth of construction.

Schools—Chances for action on federal aid seem no brighter than last year.

College housing—Congress will probably vote more money for loans—Present $500-million fund is running out.

Military construction—Annual $2-billion authorizations-and-appropriations rate will be maintained or boosted slightly. No big new program is asked.

Pollution control—An attempt to raise the ante on federal aid for sewage works construction is likely; an actual raise is not so likely.

Urban renewal—New money for grants to projects will be voted; $1-billion fund will be committed soon. Investigation without legislation is the forecast.

press for direct government loans; they will ask that $3 billion be made available to buy VA guaranteed GI home mortgages at par.

• **Partnership**—This session may also see the Administration modifying its stand on the partnership approach to water development projects. On Feb. 12, Interior Secretary Fred Seaton will make recommendations to Congress on power development of the $220-million Trinity River Project in California. Construction of all but the power facilities has been approved by Congress, and construction actually is under way.

At one time the Administration leaned toward sale of falling water from the project to Pacific Gas & Electric Co. When Congress failed to go along, a compromise was worked out calling for a study by the Interior Secretary. Speculation now is that Seaton will point out the consequences of federal vs. private construction in his report, but will fail to make a recommendation—leaving final decision up to Congress. The California congressional delegation reportedly favors federal construction of the power facilities.

There is also speculation that the Administration may ask for funds for

The Key Performers

Wide World Photos

SEN. CLAIR ENGLE of California will head up drive to make Trinity River power a federal construction project.

federal construction on the John Day site on the Columbia River in Washington and the Pleasant Valley site on the Snake River. Both had been earmarked for partnership development, but there is doubt that private companies, which would concentrate on developing power facilities, could afford to build multipurpose dams including facilities for navigation, flood control, irrigation, and fish conservation that would utilize the maximum potential of these two major dam sites.

• **Atomic power**—One rapidly expanding program that will get a new boost this year is atomic power plant construction. Last year, Congress and the Administration-controlled Atomic Energy Commission were at loggerheads over the need for a faster and bigger program of reactor building—for use of our own industry, and to keep up with the swift advance of industrial atomic power in foreign countries such as England and Russia.

The Atomic Energy Commission—led by Chairman Strauss—this week proposed an "either/or" proposition that goes at least part way towards meeting the Democratic criticism: Either private industry comes up with proposals for building needed reactors, or the AEC will build them with all-federal funds. A big federal program has been the one thing Strauss has been trying to avoid all along.

Hearings begin next month before the joint atomic committee on the progress of the whole civilian atomic program—and the need for stepped-up construction will have top priority.

• **Labor**—Despite the extra initiative being put behind proposed Taft-Hartley amendments for construction labor, the new Congress isn't likely to undertake any major overhaul of the 10-year-old

SEN. ALBERT GORE of Tennessee will be the upper house prime mover in getting the highway program out of low gear.

REP. CLARENCE CANNON of Missouri partnership partisan, holds the purse strings on money for power development.

REP. GRAHAM BARDEN of North Carolina will offer one of the biggest obstacles to federal aid for school construction.

labor-management act. The chairmen of the Senate and House Labor Committees of the last Congress are in charge again this year—and they aren't displaying much interest.

There is one new factor—the Eisenhower Administration's preliminary T-H planning. A committee of union and management leaders in the construction industry has been discussing the law in an effort to find mutual amendments that could be pushed on Capitol Hill.

The talks center around a separate labor law for the construction industry that would take building employes out from under some Taft-Hartley secondary boycott and union security restrictions.

• **Influential people**—The Democratic who are running construction legislation in the new session are generally of a pro-federal works stripe. One man may differ with another on highways, but agree with a third colleague on federal construction of multi-purpose hydro projects.

Indeed, the leaders, except for Rep. Graham Barden of N. C., are New Dealers and Fair Dealers.

Barden is chairman of the House Education and Labor Committee that will handle any school aid bill. His opposition to federal aid is twofold. Barden feels that federal grants to local districts would also result in federal controls. And, he would join the large group of Southern Congressmen opposing any federal school aid bill that makes racial integration a prerequisite for federal grants.

Most potent, in dollars and cents, is Rep. Clarence Cannon of Missouri, Chairman of the House Appropriations Committee. He holds crucial authority over money for atomic energy construction, Tennessee Valley Authority expansion, the Upper Colorado water storage project, and so on. And Cannon is dedicated against the Administration's so-called partnership policy, and favors federal construction of civilian atom plants. Sen. Clair Engle of California, will try to get federal construction of power at the Trinity Project in California. A report on the power facilities policy is due in March.

Sen. Albert Gore of Tennessee, and Rep. George Fallon of Maryland, were the major Democratic contributors to the final highway legislation last year, and will ride herd during this session on the Administration to get the program into high gear. This week, Sen. Gore was getting a report on the present state of the program from government highway officials.

In stream pollution, Rep. John Blatnik of Minnesota will seek to increase the federal grants in aid, voted as a supplement to last year's federal control law, for sewage treatment plants.

One Republican, Sen. Thomas H. Kuchel of California, is expected to carry the ball for the buildings trades unions to get amendment to the Taft-Hartley law easing restrictions on union shop membership, and other hiring practices. The Administration is expected to make some recommendations, either in today's Presidential State of the Union Message, or later, on labor law changes.

SEN. JOHN SPARKMAN of Alabama protagonist of "easy money" for private housing will probably meet with success in taking the squeeze out of credit terms.

REP. JOHN BLATNIK of Minnesota last year's sparkplug in getting grants-in-aid in the pollution control law, will try for more money this year.

SEN. THOMAS KUCHEL of California will be the champion of the building trades unions for amendment of objectionable sections of Taft-Hartley.

Federal Dams

Northwest group calls for regional financing agency

This week President Eisenhower received from federal power advocates in the Pacific Northwest a 20-year, 10-dam, $2.5-billion plan with a brand new twist for that area: A regional agency would be created for the purpose of issuing revenue bonds to finance the works.

The plan itself, authored by the Northwest Public Power Assn. contains few surprises and is pretty much a throwback to the river control plan proposed by the Corps of Engineers in 1948 (and submitted to Congress in 1950). In three cases, however, the association wants dams to be built at sites, albeit attractive, discarded even in 1948 by the Corps because of local objections. All told, the dams would add 9 million kw and 20 million acre-ft of flood control storage in the Columbia River Basin.

Little information on the financing scheme was set before President Eisenhower, except that the regional agency would be known as the Columbia River Development Corporation.

NPPA has said that legislation authorizing the agency would be ready for submission to Congress sometime this month.

• **Controversial dams first**—Urgent goals of the NPPA plan were described as an immediate start on already-authorized John Day Dam on the main stem Columbia, authorization of a high Hells Canyon Dam (and consequent abandonment of Idaho Power Co. work at Brownless on the Snake River) and authorization of the Nez Perce site on the Snake which would block private low-dam proposals at Pleasant Valley and Mountan Sheep. (Presumably the association would accept the Bureau of Reclamation's recent proposal for a high dam at Pleasant Valley just upstream from Nez Perce—see ENR Dec. 20, 1956, p. 19).

Besides the above, the federal power enthusiasts call for construction of dams at Libby on the Kootenai River, Lower Monumental, Little Goose and Lower Granite on the Snake (already authorized by Congress) and at Paradise on Clark Fork, Glacier View on the Flathead River and Bruces Eddy on the Clearwater River, a tributary of the Snake.

The three resurrected projects are those at Nez Perce, providing 4.8 million acre-ft of usable storage, Glacier View, 3.2 million acre-ft, and Paradise, 4.1 million acre-ft. The last-named has recently been restored to the Corps of Engineers' list for active study.

Coming when it does, the NPPA proposed plan appears to be a well-timed effort to influence the Eisenhower partnership policy and perhaps a more subtle attempt to influence the Corps of Engineers which is to come up with its own master plan in October of this year. This is specifically a revision and updating of the Corps' 1948 main control plan, two-thirds of which has been unrealized.

Shift of Authority

States due to make more highway program decisions

More decisions on the new highway program are slated to be made at the state level. That is the aim of a major "decentralization" of operating authority just announced by Federal Highway Administrator John A. Volpe. Purpose of the move is to speed up progress on building the roads by tossing the working decisions to state offices of the Bureau of Public Roads and so leave Washington free to devote its time to policy matters.

Effective January 1, state offices now have authority to take final action on the following:

• Final locations of interstate roads between cities. Washington will still decide the control points of the system, but once these are approved then field offices have the say on routes between cities.

• All matters relating to the location of the primary and secondary highway system.

• All programs of specific federal-aid projects proposed by the states for construction on the interstate, primary and secondary systems.

• Formal project agreements between the states and federal government on federal-aid work. Signing of these agreements will earmark federal funds for payment of the federal share of the cost of the project.

This latest shift of responsibility to field offices, coupled with previous delegations of authority, means that working control of the new highway program now rests with a Bureau of Public Roads office in each state.

Controversial problems that arise will still be appealed to Washington. Secretary of Commerce Weeks said, "The net result will be to relieve the Washington headquarters and regional offices of many time-consuming details which would otherwise require a considerable expansion of staffs at the Washington and regional levels."

States had plugged for a decentralization of power for some time, and see in it a chance for individual projects to receive more attention with more weight being given to local factors.

Niagara Question

Power development issue winds up as a court case

The Power Authority of the State of New York went to court in Washington, D. C., last week in an effort to get approval of its application to develop the U. S. share of wasting hydroelectric power at Niagara Falls.

Suit was filed in the Circuit Court of Appeals to establish that the Federal Power Commission has the jurisdiction to license the power agency's application in spite of the 1950 treaty between the U. S. and Canada. A reservation in the treaty provides that Congress must decide who should develop the U. S. half of Niagara power.

The FPC dismissed the PASNY application on grounds that it lacks jurisdiction to act upon it because of the treaty reservation. And PASNY now has gone to court to try to prove that the treaty reservation is unconstitutional.

PASNY goes to court on this matter armed with expert legal advice. But whatever its hopes for the court approach may be, the state power agency also will be fighting in Congress for the action it has sought over the years and came closest to getting last year—action that would finally and clearly give it the approval to go ahead with the $550-million Niagara power development. The agency already has Uhl, All & Rich—the consultants on its St. Lawrence Power Project—hard at work on studies, surveys and preliminary design for the Niagara work.

Nuclear Congress Will Ponder Power and Wastes Problems

Engineers and scientists will consider 40-odd major topics of nuclear technology at a week-long 1957 Nuclear Congress in Philadelphia March 11 to 15. Among subjects scheduled for discussion are nuclear generating stations, radioactive-waste disposal and legislative and legal problems.

Coordinated by the Engineers Joint Council, the congress will be sponsored by more than 20 engineering and technical societies, including the American Society of Civil Engineers, American Water Works Association, Federation of Sewage and Industrial Wastes Associations, American Society for Testing Materials, and American Society for Engineering Education. This is the second such conference.

Upwards of 200 technical papers will be presented, and there will be two days of conferences for business executives interested in atomic energy.

Copies of the advance program may be obtained from the Engineers Joint Council, 29 W. 39th St., New York 18.

Slow but Sure

Coast-to-coast Canadian highway now 63% complete

Slowly but surely the building of the all-paved Trans-Canada Highway from coast to coast across the Dominion is approaching completion.

In reviewing progress during 1956, federal Public Works Minister Robert Winters stated that 63% of the full length of the highway is now paved, 2,735 miles out of the total length of 4,480 miles, with 1,536 miles completed to the standards of construction agreed upon between the federal and the participating provincial governments.

The Province of Quebec remains as the one provincial government which has refused to enter into the general federal-provincial agreement.

The individual agreements run out on December 31, 1960 but Mr. Winters indicated that he does not expect the whole highway to be complete by that time. He merely noted that the provinces were preparing realistic construction schedules to achieve "a maximum of reconstructed and new highway by the end of 1960."

Illustrative of some of the difficulties in the way of completing this highway construction on time is the fact that there is still a gap of 164 miles between Agawa and Marathon on the north shore of Lake Superior, in some of the wildest country of the continent, which has not yet been even constructed. About 100 miles of this stretch are now under contract, and the federal government is paying 90% of the cost of this stretch, as against 50% for roads in more populated areas.

Two Great Lake Cities Study Plans for Port Development

A group of Detroit financiers are ready to announce a new port development that may cost $45 million and could be expanded into a $100-million project, reports said last week. The proposed project includes berths for ocean-going vessels, facilities for rail lines and truck terminals.

The area under consideration lies west of the western limits of the new Civic Center now under consideration.

Mayor C. P. Cobo has classified all meetings with the financiers as "top secret," but it is no secret that local business interests are unhappy with what they have called the aimless meanderings of the city's Port Commission and have urged that private money step in and get the job done properly.

• **Rochester plans**—In Rochester, N. Y., the City Council has received plans to make the Port of Rochester fit for deep-water shipping. The harbor improvement program is designed to admit seagoing vessels coming inland via the St. Lawrence Seaway.

A preliminary report accepted without comment, outlines a $687,000 program for new, deeper steel pilings designed to support the quay after the shipping channel is deepened from 20 to 27 ft.

Site Surveys Get Under Way For Lower Snake River Dam

The Walla Walla, Wash., District Corps of Engineers, has begun preliminary surveys and exploration of possible sites for proposed Lower Monumental Dam on the Snake River in southeast Washington State, 27 miles upstream from Ice Harbor Dam, now under construction (ENR Dec. 27, 1956 p 25).

Lower Monumental would be the second in a series of four proposed dams on the river between Pasco, Wash., and Lewiston, Idaho. It would back water 27 miles to the site of proposed Little Goose Dam.

Lower Monumental, with an initial power installation of 240,000 kw, would cost an estimated $123 million. It also would provide irrigation, recreation and navigation benefits.

Sewage Plant at Hoover Dam To Serve Tourist Population

A sewage disposal system at Hoover Dam to prevent contamination of water released into the Colorado River and Lake Mohave is being constructed by the Bureau of Reclamation.

The need for a sewage plant was not contemplated at the time the dam was built. But as a tourist attraction, the structure draws over two million visitors a year. And water samples showed contamination below Hoover Dam as much as 60 miles downstream during summer low-flow.

The lesson learned at Hoover has led the bureau to provide for sewage facilities as part of the basic design of Glen Canyon Dam, now started several hundred miles upstream.

Another City Has Big Plans To Combat Parking Problems

The Wilmington Parking Authority has revealed details of a $4.6-million, 10-year program designed to combat the city's parking problems.

The authority's first move toward realization of its goals will be a request to either the present or incoming City Council for $1.5 million to buy five additional off-street parking areas. The overall plan, when completed, will offer facilities for 1,785 vehicles.

Who's the Low Bidder? Dispute Halts Airport Project

Court action has temporarily delayed an attempt by the Columbus (Ohio) City Council to follow the recommendation of the Columbus Airport Commission in awarding contracts for construction of the $3-million Port Columbus Terminal to other than the low bidders.

Morris Skilken & Co., Inc., claims its general contract bid of $2,217,242 is $9,758 lower than that submitted by Garwick & Ross, Inc., the firm favored by the commission. Furthermore, Piping Contractors Co. said its bid of $335,984 for the heating-ventilating-air conditioning phase of the work is lower than that submitted by Limbach Co.

The Airport Commission had advised the City Council that it considered the Garwick & Ross and Limbach Co. bids the "best" submitted, and recommended their acceptance. On application by Skilken and Piping Contractors, a Franklin County Common Pleas Court granted orders restraining the City Council from awarding the contracts to other than the low bidders until after final determination of the merits of the case.

Alaska Military Spending To Hit $125 Million

The Corps of Engineers' Alaska District, said last week that more than $125 million will be spent in 1957 on Army-Air Force construction in the territory. Of this amount, $86 million is for new construction to be contracted during the first half of the year, $48 million of it for Army projects and $38 million for Air Force construction.

Seven civil works projects totaling $7 million are planned as well as harbor improvement and flood control projects costing $5.5 million.

Philadelphia Signs Contracts For Sewage From the Suburbs

Another big city got together with its suburbs on an environmental control problem last month as Philadelphia agreed to accept sewage from two adjacent townships.

Under long-term contracts, one for 35, the other for 55 years, Lower Merion Township and Upper Darby Township will pay the city an annual rental fee to discharge into the city system. The townships have to construct connecting lines.

Among other advantages, the agreement will have an immediate effect on pollution in the Schuylkill River, one of Philadelphia's water sources.

Existing facilities of the townships serve a number of other municipalities.

Suit Seeks Flood Damages, Blames Corps of Engineers

The first of an expected number of suits against the federal government in connection with the disastrous Yuba City, Calif., flood Dec. 24, 1955, has been filed in the United States District Court in Sacramento, Calif.

The suit charges that the Corps of Engineers in rebuilding the Feather River levee in 1937 left it in a "weak and dangerous condition, particularly at the Gum Tree portion." It was at this point that the levee gave way, flooding Yuba City and thousands of acres of surrounding farm land.

The action charges the Corps rebuilt the levee "negligently, carelessly and in a manner contrary to prevailing engineering practices."

The suit blames the Army on another point. It charges that between 1937 and 1942 the Army blocked off a bypass to the south of the break, causing flow in the Feather River to increase.

Pacific Gas & Electric Co., a private utility operating in the area, also is a defendant in the suit. The action charges that PG&E prior to Dec. 24 ran a pipeline through the west bank of the levee, leaving it in a weak condition.

The initial suit asks more than $450,000 damages for 14 families.

City Reuses Its Sewage During Water Emergency

Fifty to sixty percent of the water being used by water-short Chanute, Kan., in its sewage works effluent, is brought three-quarters of a mile upstream to the waterworks intake in an emergency reuse measure.

The Kansas State Board of Health recommended the measure. City officials credit it as a big factor in keeping Chanute's population of over 10,000 supplied with water.

The city's new $400,000 sewage treatment plant reportedly puts out an effluent of better quality than its receiving water. It treats from 600,000 to 800,000 gal daily. An earth dam at the sewage plant causes effluent to back up to the water intake.

Longest Unwrapped Aluminum Gas Line

Twenty thousand feet of 8-in. aluminum pipeline laid without wrapping or cathodic protection now is bringing natural gas into the Aluminum Company of America's Point Comfort, Tex., plant. Alcoa believes it to be the largest and longest unprotected aluminum gas line now in service.

The pipeline, which operates under 500 psi and has been tested at 800 psi, is shielded only by electrical insulation at certain flanged points. However, anodes will be installed on test sections to study their effectiveness.

The line was installed by Lavaca Pipe Line Co., Port Lavaca, Tex., joining 40-ft lengths using argon shielded tungsten arc and consumable electrode welding methods. Alcoa hopes performance of the pipeline will confirm aluminum's suitability for oil country use.

More Road Plans

Four states announce road programs totaling more than $600 million in 1957

Evidence of the gathering speed of the nation's huge highway program came last week from four states, which announced 1957 highway programs totaling more than $600 million.

Biggest program was announced by Gov. William G. Stratton of Illinois, who said his state would spend $220 million during 1957 for new construction and improvements. In a detailed discussion of the plan, Gov. Stratton said that $143 million will go for construction and right-of-way acquisition for projects on the interstate system; $77 million for improvements on other state roads. $160 million of the total represents federal aid allotments to the state.

Actual mileage would include 232.3 miles of the interstate system, among them major routes in and around Chicago.

Michigan's Highway Commissioner, Charles M. Ziegler, announced a $190-million program for the new year—far above the record $169 million worth of contracts let by that state in 1956. Almost all of the new program—$175 million of the total cost—will be spent on the roughly 1,000 miles of interstate system roads within the state. Ziegler commented that most of the interstate system highways will have to be built on new location, due to difficulties imposed by limited-access requirements.

Pennsylvania's Department of Highways outlined a $2-billion program over the next 13 years—and said it planned to spend more than $181 million in 1957-58. One of the first projects up for bids, according to Highways Secretary Joseph J. Lawler will be the link-up of the Schuylkill Expressway in Philadelphia and the new Walt Whitman Bridge spanning the Delaware River to Gloucester, N. J. Other projects to be covered are the $12-million Fort Pitt Bridge in Pittsburgh; two sections of the Erie County Freeway to tie the New York Thruway to the Ohio Turnpike via northern Pennsylvania and numerous other projects throughout the state.

In Ohio, S. O. Linzell, Highway Director, outlined for the state legislature a $2-billion program for the state over the 13 years of the federal highway program. Linzell cautioned the lawmakers that, although new state funds are not immediately needed to help finance the program, provisions should be made by the current legislature so that work on state roads other than those under federal aid won't suffer for lack of money.

Columbia Navigation

Corps believes it will be more important than power

Col. Myron E. Page, Corps of Engineers Walla Walla District Engineer, told the Spokane Chamber of Commerce recently that he thinks Columbia River navigation eventually will have a bigger effect on the area's economy than hydroelectric power development.

He declared: "It is my considered opinion that the slackwater navigation feature of the multiple-purpose projects on main stem Columbia and Snake Rivers may possibly have a greater impact on regional development . . . than that resulting from their hydroelectric power generation."

Today Spokane and the "Inland Empire" area have only one major postwar industry: light metals production and fabrication based on low-cost power. The region's other economic bases are agriculture, mining and lumbering.

Colonel Page said that while waterborne commerce is not economical today on the Snake River, completion of four lower Snake dams (Ice Harbor, Lower Monumental, Little Goose and Lower Granite) will permit an annual tonnage estimated at 2.5 million at Ice Harbor. This is about three times the present tonnage at McNary Dam on the Columbia River and equivalent to three daily trains of 50 loaded cars each.

Army Engineers predict that large tonnages of alumina, petroleum products and petroleum coke will move upstream on the slackwater system in future years, creating new ports at towns now little more than names, such as Wawawai, Almota and Central Ferry. Aluminum products and grain will move downstream in heavy tonnages by water.

Traffic Engineering Course Will Be Expanded at Yale

Hoping to aid in production of qualified engineering personnel needed for the nation's greatly-expanded highway program, Yale University will increase the training program at its Bureau of Highway Traffic.

The university's traffic bureau has been in operation since 1926, and its courses are designed exclusively to equip students for responsible positions in the field of highway traffic operations.

The academic year of study now offered consists of two full semesters of classroom work, laboratory and individual research, field problems and seminars. Courses include traffic characteristics and measurement; traffic regulation and control devices; traffic facility planning and design; highway administration and finance.

Next year, university authorities said fellowships will be offered to U.S. citizens qualified for graduate work. The fellowships will provide a living stipend of $1,400, a tuition fee of $600. In addition to fellowships, the bureau offers tuition scholarships to qualified municipal and state highway engineers who will receive salaries from their employers while attending the courses.

District Asks State Approval For Private Sewage Works

A local sanitation district in Virginia has initiated a move for state legislation to permit local public control over privately operated sewage treatment plants. Recommendations will be made to the general assembly in the near future.

The Hampton Roads Sanitation District is concerned with small plants operated by rural schools, industries and private housing developers. A district spokesman has said that in general such plants are planned and constructed satisfactorily, but are often operated by persons who "know little or nothing" about them.

The district's plan would cause local authorities to approve design and construction of the private treatment works, then make periodic inspections to assure proper operation.

A Big Year Ahead

1957 construction outlays will set a record, AGC says

Expenditures for construction put-in-place will reach a dollar volume of $64.4 billion in 1957, and will set a new record for the twelfth consecutive year, the Associated General Contractors predicted last week.

New construction will total $47.4 billion, AGC said, while modernization and repair work will account for another $17 billion.

AGC's $47.4-billion forecast for new construction is $1 billion higher than the estimate made earlier by the Commerce and Labor Departments.

Its forecast is based on continuing prosperity, the growing backlog of construction needs, industry's plans to continue heavy spending for new plant and equipment and the record-breaking volume of public works bond issues approved in the November elections.

The contractors' group also assumes that credit conditions will ease, structural steel output will rise, building costs will go up only "moderately" and that there will be "no major work stoppages or worsening international conditions."

Pennsylvania Governor Requests Free Pike

Gov. George M. Leader has asked the 1957 Pennsylvania Legislature to free the Pennsylvania Turnpike, but did not go into details on how the multi-million-dollar bonded indebtedness would be written off.

One unofficial proposal would provide for the State Motor Fund to assume the financial obligations of the pike system.

"In my judgment," Leader told a joint session of the state legislature Jan. 1, "the Pennsylvania Turnpike system must be freed of its tolls and made an integral part of the interstate system—there is some legal question as to whether the bonds may be paid off before maturity dates.

"We are going to press very hard for that achievement, and I hope that in our pressure, I will have the support of every member of the general assembly." (The governor is a Democrat, but both branches of the assembly are Republican-dominated.)

Leader said his administration freed the proposed South Hills Tunnels of the Penn-Lincoln Parkway in Allegheny County by abolishing the authority-type financing proposed through the State Tunnel Commission, and turning the project over to the highway department. A turnpike link across northwestern Pennsylvania to join the New York Thruway and the Ohio Turnpike also is being built as a freeway.

The governor also said he would push other major projects as part of the federal interstate system. "Our planning calls for the construction of a new interstate highway across the spine of the state from Sharon to Stroudsburg, for the improvement of Route 6 across the Northern tier as part of the primary highway system, for an interstate highway from Lake Erie to the West Virginia border in the west, and for the solution of the major highway problems of metropolitan Pittsburgh and Philadelphia.

"To expedite the program, we will submit to the legislature revisions of the present law prescribing the taking of rights-of-way. We also hope to establish a degree of advance planning in the highway department that will permit the acquisition of rights-of-way some years in advance of the actual construction."

In addition, the governor said he would ask the legislature to help prevent the blighting of state highways by signboards and shacks through the enactment of a highway zoning law. "We should not be in the business of recreating captive motor audiences for the billboard business," the state's chief executive told the lawmakers.

U. S. Steel Corp. photo

All-welded bridges: Survey reveals that . . .

22 States Weld Bridges

The number of states building all-welded highway bridges has more than doubled in the last six years, according to the James F. Lincoln Arc Welding Foundation, of Cleveland.

In a recent poll of state highway departments, to which 46 replied, the foundation learned that:

- All 46 weld secondary members, such as bracing.
- 35 weld cover plates on rolled shapes used as bridge girders.
- 22 are using all-welded construction for plate girders.

In contrast, says the foundation, a 1950 survey by the Subcommittee on Welded Bridges of the American Association of State Highway Officials disclosed that only 10 states were using all-welded construction for bridges.

State by state, some of the replies to the Lincoln survey revealed that:

Arkansas has built one bridge incorporating several welded plate-girder spans and has contracted for four more.

California has in service about 70 all-welded bridges besides those in the San Francisco Freeway. The latter project includes about 27,500 tons of welded steel.

Colorado's Denver-Boulder turnpike includes a number of welded bridges.

Connecticut has 29 all-welded bridges and 21 partially welded.

Florida has 11 all-welded bridges in service, including five with movable spans and two with clear spans of 150 ft or more. Also nearly all I-beam bridge spans are constructed with cover plates welded to the bottom flanges and shear developers for composite-deck construction welded to the top flanges.

Georgia recently built its first all-welded plate-girder bridge, with spans ranging up to 154 ft.

Illinois also constructed its first all-welded bridge a short time ago, a three-span continuous structure with a maximum span of 179 ft. The state has used welded cover plates, however, for 20 years.

Iowa has four all-welded plate-girder bridges in service, four more under contract and six scheduled to be let shortly. Welded cover plates have been used in the state for many years.

Kansas built its first all-welded bridge, a four-span continuous girder type, in 1949. Today the state highway system has 16 all-welded plate-girder bridges, the Kansas Turnpike has 28, and county road departments have 10. In addition, more than 500 bridges in the state have girders with welded cover plates.

Kentucky is now designing its first all-welded plate-girder bridge.

Louisiana has one all-welded plate-girder bridge in use. Welding was also used extensively in constructing the overpass at the New Orleans terminal project.

Nebraska has built and contracted 10 all-welded plate-girder bridges since 1953. Six more are currently in the design stages.

New York has erected nearly 800 welded steel bridges since 1942. Nearly all of the 500 Thruway bridges are welded, and there is also a welded railroad bridge over the Cherry Valley Turnpike.

Ohio now has one all-welded vehicular bridge under contract and two more in design, one of which will have 246-ft spans. Three all-welded through-girder pedestrian overpasses, with spans up to 205 ft, are in service. About 500 continuous-girder bridges of three or more spans have been built in the state during the last 20 years with welded cover plates, bracing and other details.

Oklahoma has under construction eight welded-girder bridges spanning up to 108 ft. Plans have been completed for 12 more, with spans up to 142 ft.

Oregon has built six welded plate-girder bridges with spans up to 160 ft.

South Dakota considers welding the conventional method for making structural connections on all bridges except truss spans.

Texas uses welded fabrication and field connections for nearly every steel bridge of less than 160-ft span. The state has bridges under contract with welded-plate girders spanning up to 270 ft. Field splices, however, will be either riveted or bolted.

Other states reporting welded plate-girder bridges already designed or under design are Massachusetts, New Hampshire, North Dakota, Rhode Island, Vermont and Wyoming.

The survey also brought out the fact, according to the Lincoln Foundation, that the use of all-welded construction has trimmed bridge-steel requirements as much as 20% for a number of states.

Court Approves Meter Revenues For Off-Street Parking Plan

In an unanimous decision, the Ohio Supreme Court has ruled that the City of Cincinnati legally can use parking meter receipts to provide off-the-street parking facilities.

A suit, filed by a local taxpayer, contended that any such use of parking meter funds would be an abuse of the city's corporate powers and a violation of the state constitution, and that an increase in meter rates actually constituted a tax.

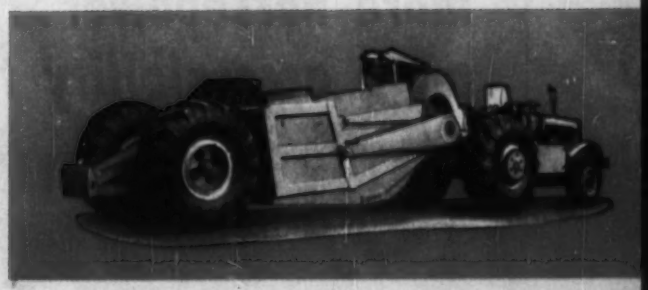
In its decision, the court stated: "The expenditure is not unconstitutional, for the reason that the section of the constitution referred to is a limitation only on state imposed fees and is not applicable to fees imposed by cities."

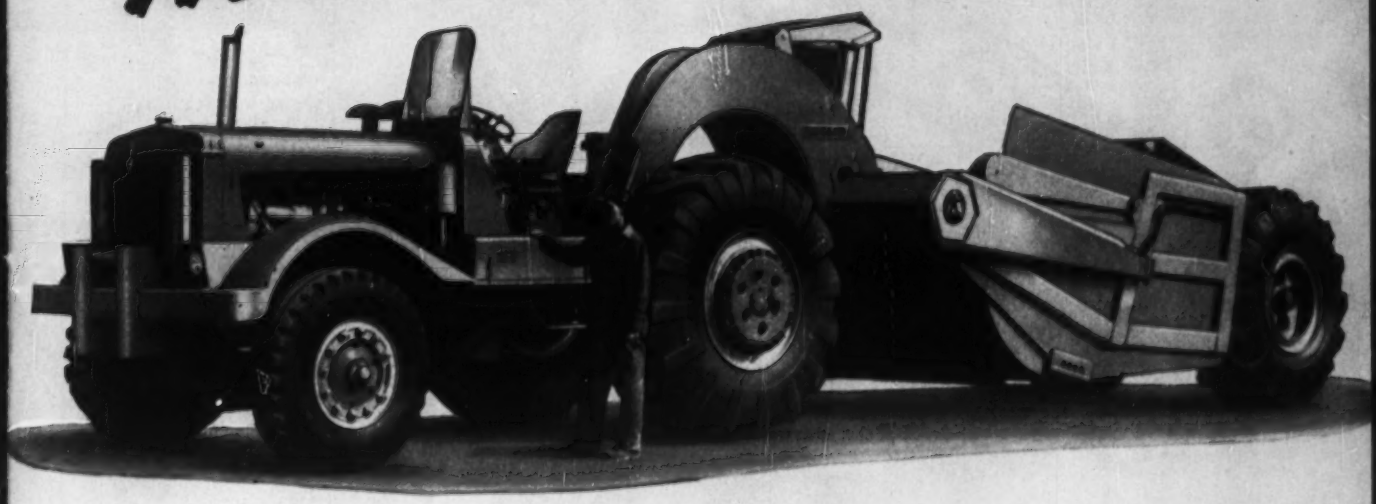
In answer to the claim that the meter charges are a tax, the court said: "Where fees charged by a municipality for the parking of motor vehicles on and off the streets are not unreasonable in amounts or designed to bring to the municipality revenue other than sufficient to cover the cost and expense of providing necessary parking facilities . . . the charging and collection of such fees will not represent a tax."

With the settlement of the taxpayer's suit, the city now is able to proceed with the building of six long-planned off-street parking garages. The garages will be financed by self-supporting mortgage revenue bonds, but financing arrangements have been withheld pending the court's decision because, to make the bonds more attractive, city officials intend to use parking meter receipts as collateral.

Here's the NEW *SS-24* "EUC" SCRAPER

31 Yards HEAPED!





Increased Production for high speed, long haul jobs

Euclid's new Model SS-24 has a struck capacity of 24 cu. yds. . . . carries up to 31 yards heaped at 1:1 slope . . . is available with either a 300 h.p. or 335 h.p. engine.

New Allison Torqmatic Drive with four speed ranges provides plenty of torque in lower ranges to meet the requirements of heavy loading and soft fills, yet permits high travel speeds for fast hauls. Shifting under full power without loss of momentum reduces cycle time.

Six wheel design of this SS-24 gives it exceptional stability for long fast hauls. It is equipped with No-Spin differential, Euclid planetary drive axle and 27.00 x 33 drive and scraper tires (33.5 x 33 are optional). Euclid hydraulic lever control of all scraper operations eliminates downtime and expense resulting from cable breakage. The cutting blade's four sections are interchangeable and reversible, providing straight and drop-center arrangements and longer blade life in any material.

See your Euclid dealer for more information on this big new scraper and the complete line of Euclid earthmovers . . . he can show you why ***Euclids are your best investment.***

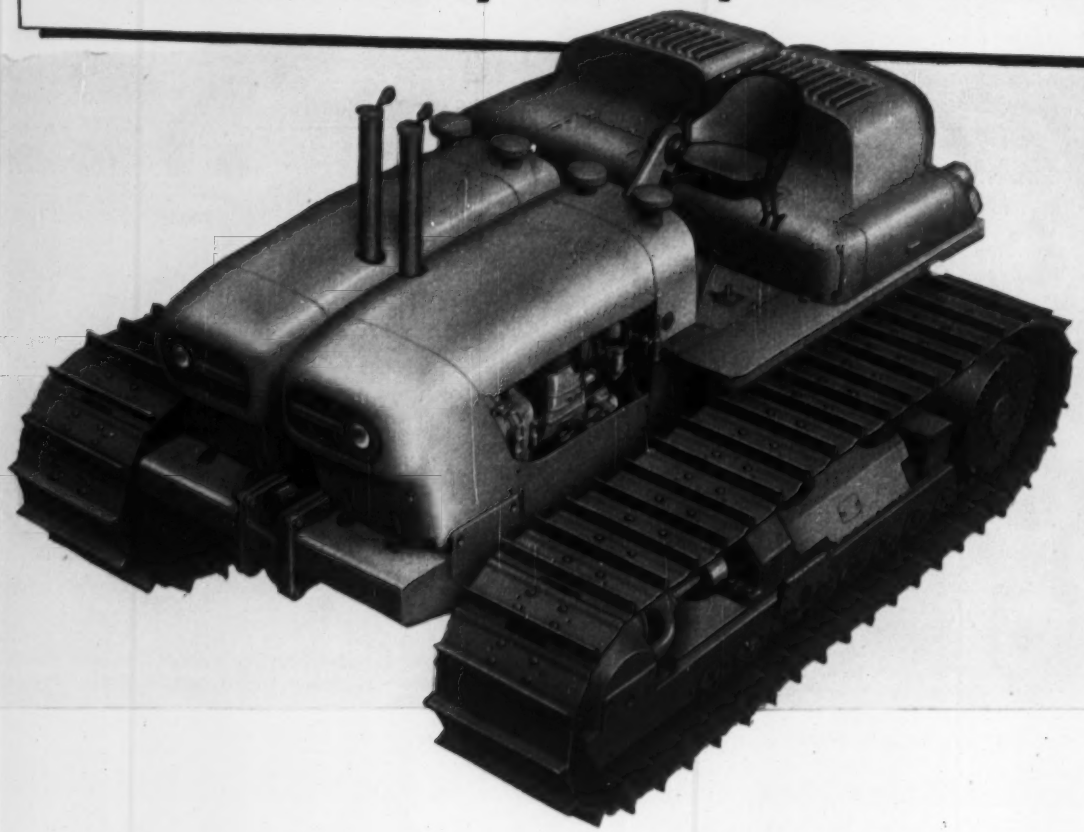
EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

NOW THE Euclid TC-12 GIVES YOU

more horsepower... more track area... more accessibility than any other crawler!



Ever since it was introduced more than a year and a half ago, the Euclid TC-12 Tractor has set completely new standards of crawler production and performance. It has proved, on job after job, that it is years ahead of the field in ability to do more work—faster, easier and cheaper. Now the TC-12 has even more power to handle the biggest tractor jobs.

Powered by two 218 h.p. engines with separate Torqmatic Drives for each track, there's a total of 436 horsepower. Big 27" standard shoes and 8 track rollers give good balance with the additional horsepower, heavy duty dozer blades and other attachments.

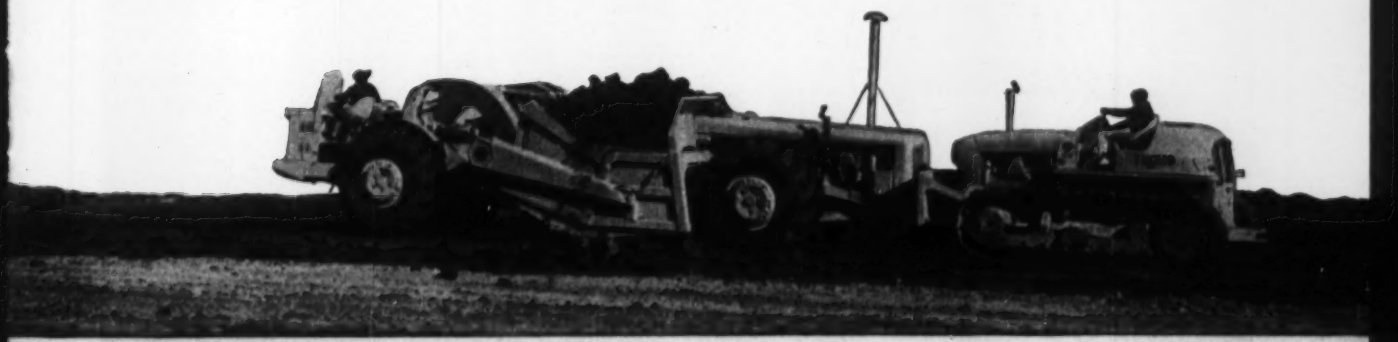
This new TC-12 Crawler has many other improvements that put it even further ahead of other tractors . . . in performance, ease of operation, maneuverability and service accessibility. Ask your Euclid dealer to prove that the TC-12 has no equal for big tractor jobs and have him show you why ***Euclids are your best investment.***

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

20% MORE WORK-ABILITY



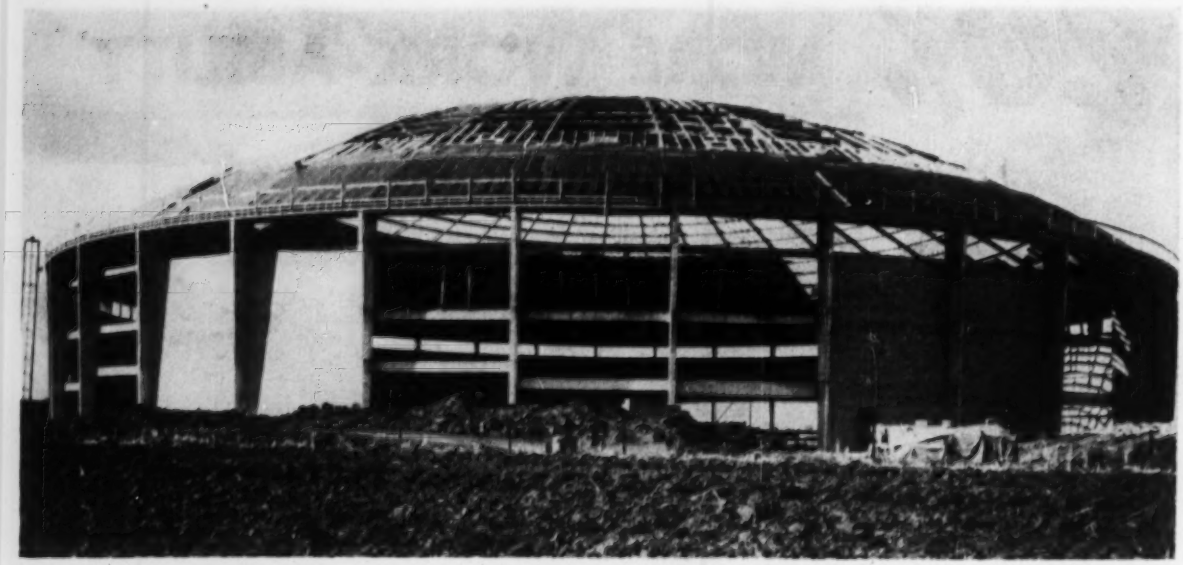
Euclid "Twins"—the TC-12 Tractor and Twin-Power Scraper—will move the cheapest dirt on the big road program or on any earthmoving job. They can set new production records at lower cost on your operations.

The Euclid TC-12 has exceptional maneuverability because each track has a separate power train. Operator has excellent visibility and "hair trigger" control of steering in any of the three speed ranges, forward or reverse.

With separate Torqmatic Drive for each big track, the TC-12 is fast on its feet, with plenty of power and traction for any big tractor job. It has proved its ability to outwork any other tractor on dozing, clearing, push-loading scrapers and pulling big equipment.

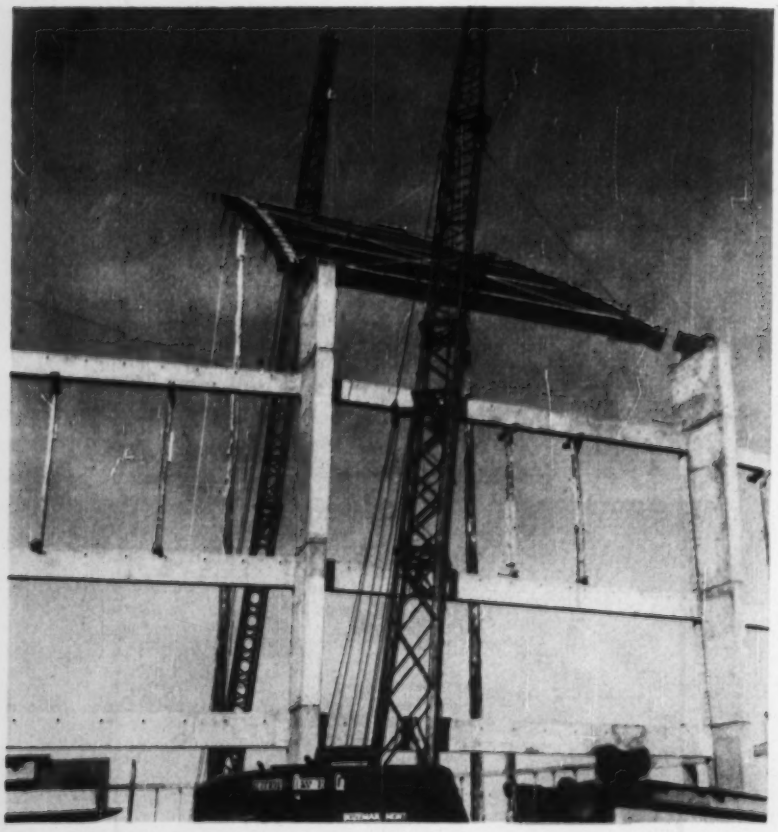
A high production machine, the TC-12 is easy to operate—delivers more push-pull drawbar horsepower at high travel speeds. Unitized assemblies and easy accessibility of major components permit servicing without major tear-down of other parts.

For push-loading big scrapers the Twin-Power "Euc" crawler has no equal. Torqmatic Drive provides a smooth, steady flow of power—changes from one speed range to another and from forward to reverse are made under full power.



FRAMED WITH A SPHERICAL GRID OF GLUE-LAMINATED MEMBERS . . .

Biggest Wood Dome Spans 300 Feet



FIRST TO GO UP were the sections around the perimeter. They were held aloft by two cranes while wall ends were seated and free ends were shored up on wood poles.

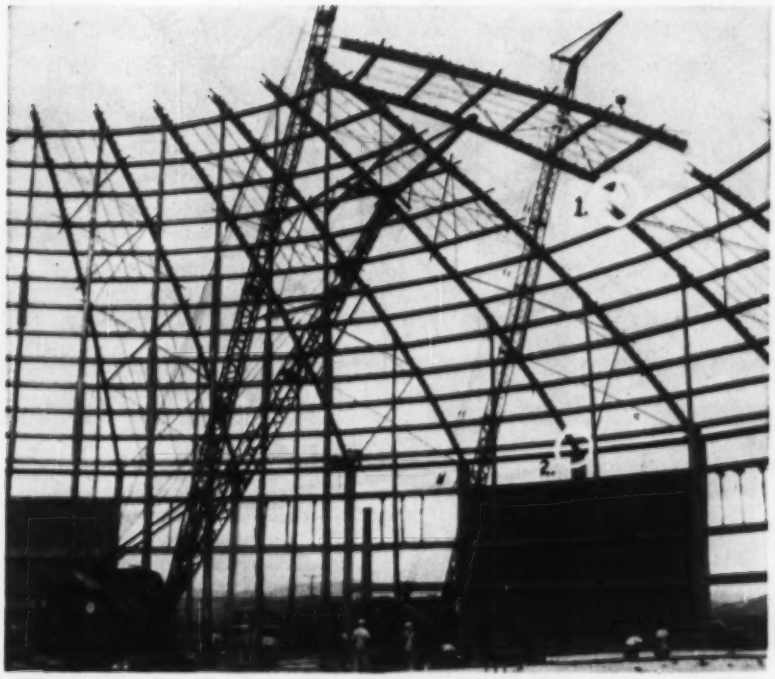
The biggest timber-framed dome ever built supports the roof of Montana State College's new $1.5-million fieldhouse, in Bozeman, Mont. The spherical structure is 300 ft in diameter, as reported briefly in ENR Dec. 6 (p. 72), and covers a post-free floor area of 70,000 sq. ft.

In appearance, the frame suggests a giant spider web. Thirty-six main ribs fan out radially to the walls from a steel compression ring at the center, and purlins frame between the ribs every 8 ft to form concentric 36-sided polygons about the compression ring. The dome rises 51 ft above the springline.

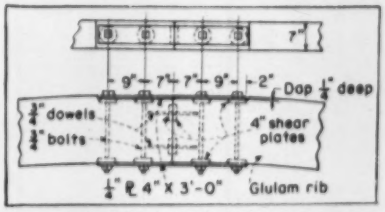
The radial thrust of the structure is contained by a steel ring girder. Encircling the dome at the base of the ribs, the girder is a 30x10⅝-in. section built-up of channels and plates. The girder lengths were welded in the field to the base shoes of the ribs.

• **Members are glued**—Both ribs and purlins are glue-laminated Douglas fir. The ribs are curved, constant-section members—150 ft long, 250-ft radius, 7x16¼ in.—spliced at the third points. The purlins are straight members, varying in length from more than 25 ft to less than 3 ft (depending on distance from the crown of the dome), and ranging in cross section from 7x17⅞ in. to 7x11⅛ in.

Fastened on top of, and normal to, the purlins, 2x4 subpurlins support 3-in.

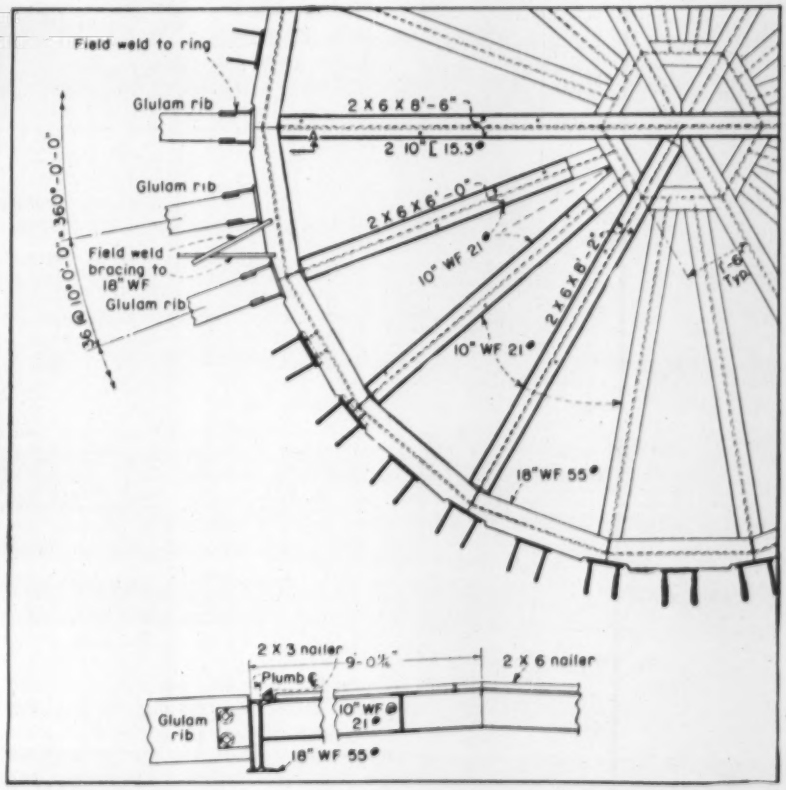


SECOND TIER of sections was raised after purlins had been installed between sections in the lower tier. Rib splice (1) and rib base (2) are detailed at right.



RIB SPLICES, at third points, were connected in the air.

CROWN OF DOME is 90 ft above floor. Supporting pilasters are 39 ft high.



COMPRESSION RING, 18 ft in diameter, is focal point for all 36 ribs.

thick wood-fiber concrete roof panels.

The dome frame is cross-braced in each of the 36 sectors between the ribs by several steel-strap X's. Ends of adjacent X's were welded together after erection so that, in effect, the straps are a large-mesh steel net enveloping the entire dome. Each X is two layers deep—one under and one over the subpurlins.

• **Dome was partly preassembled**—To simplify erection, the dome frame was assembled in sections on the ground; then the sections were raised and joined together in the air.

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STEEL PLATE FABRICATION

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- Flues and Ducts
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- Dust Collector Housings
- Industrial Gas Mains
- Expansion Joints
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
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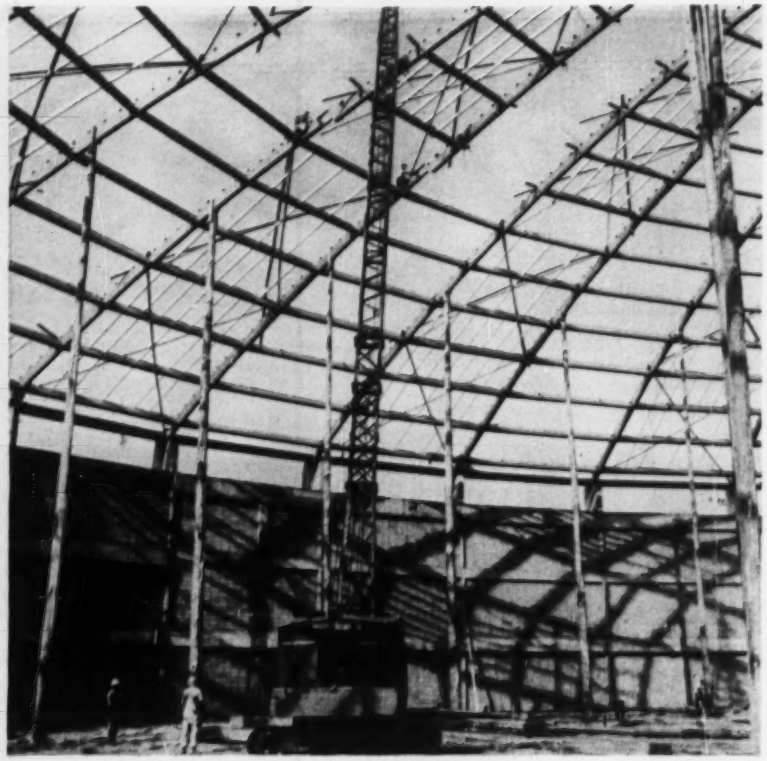


WOOD-POLE SHORING supported the dome sections during erection. When the entire frame was complete, the poles were disengaged in easy stages.

These erection assemblies were about 50 ft long, the length of rib segments between splices. Each comprised a pair of rib segments, the intervening purlins and, in some cases, the subpurlins and steel straps.

• **Erection sequence**—The 18 sections in the lowest of the three tiers between the wall and the compression ring were placed first. While the cranes held a section aloft, the crew seated the wall ends of the ribs in the base shoes (previously anchored to the pilasters) and shored up the inner ends with wood poles. When this tier was complete, around the entire perimeter, purlins were installed between the erection sections. Then, the ring girder members were welded in place.

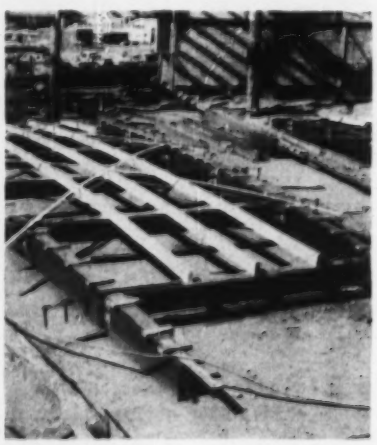
The middle tier of erection sections was then raised, spliced to the first tier, and shored up in the same manner as before.

Next, before the top tier of sections was erected, the compression ring was hoisted to the top of a wood-pole shoring tower. Then, the top-tier sections were installed between the middle tier and the compression ring.

Finally, the shoring was disengaged in easy stages, and the steel straps were welded together between dome sections.

Total floor area, including appended construction outside the dome-roofed area, is 138,000 sq ft. Seating capacity is 12,500. The entire project cost $1.45-million—$11.10 per sq ft, including $1.25 per sq ft for the dome framing.

The fieldhouse was designed by Willson & Berg, architects, of Bozeman, Mont. Ben F. Hurlbutt, of Billings, was the consulting engineer. Haggerty & Messmer Co., of Bozeman, was the general contractor. Timber Structures, Inc., of Portland, Ore., laminated, fabricated and erected the dome.



DOME SECTION comprised two rib segments, purlins, subpurlins, steel X-bracing.

SQUIRREL HILL The largest single project ever put under contract by Pennsylvania is the Squirrel Hill Tunnel in Pittsburgh. Joy equipment on the job included:

26—3½" Drifters on two Jumbos
(48" *Pistonmotor* Automatic Feeds)
4—*WN-102* Semi-portable Compressors
5—54" *Axivane* Fans

String-a-Lite Portable Lighting Systems

One of five 54" Axivane Fans which ventilated headings during tunnel construction.

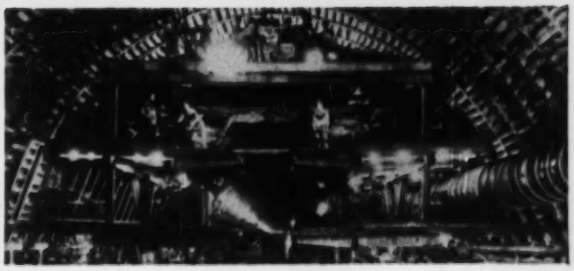
Four heavy duty WN-102 Compressors provided air to drive drills.

YOU'LL FIND JOY EQUIPMENT

NIAGARA FALLS World's largest tunnel (twin tubes 51′ dia., 5½ mi. long) was bored out of solid rock with the help of this Joy equipment:

114—*T-350* Drifters on *LW-6A* Feeds on Hydro Drill Jibs
24—*WN-102* Semi-portable Compressors
Axivane Fans . . . added as needed

This, the first large tunnel project where drilling has been mechanized, was an *"all-Joy Equipment" operation.*



Main Jumbo for driving top heading—mounts seventeen T-350 Long-feed Drifters on Hydro Drill Jibs.

AT WORK IN THE WORLD'S FOREMOST TUNNEL PROJECTS

BOQUERON Venezuela's twin-bore tubes on the Caracas-LaGuaria Expressway use a vent system of 24 *Axivane* Fans . . . largest installation of its design in existence. Air is driven at the rate of *125 tons a minute.* During construction of the tunnels, the contractor used high-performance portable *Axivane* Fans for ventilation.

Joy portable Axivane fans provided ventilation during construction of tunnels.

Permanent vent system of tunnels employs 24 Axivane Fans.

For details on Joy equipment for tunnels, write to ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Penna.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

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JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS
FOR OVER HALF A CENTURY

To bisect Boston without interrupting traffic or utilities, contractor and engineer find . . .

How to Cut Through a City's Heart

(Map) Tunnel permits free flow of through traffic under congested area, while ramps provide access to business district.

How do you go about putting an axe into the heart of a city like Boston without killing it? How, in the space of 3,200 ft can you level $10 million worth of real estate, take the top off a subway tunnel (but keep the trains running), bisect ten streets, cut and relocate more than two hundred major utility installation—without interfering with the normal activities of the 2.3 million people living and working in the area? What are the problems—and how do you lick them?

These questions faced the Massachusetts Department of Public Works and general contractor V. Barletta at the inception of work on the tunnel section of Boston's John F. Fitzgerald Express Highway. The answers they found were unspectacular—but practical; thorough, meticulous planning of every phase of the work, schedules drawn and adhered to with the precision of a military maneuver (in spite of unanticipated conditions), solid, good construction work.

Forming a connection between two elevated sections of the $80 million Boston Central Artery, the $17.5 million tunnel will speed traffic through

one of the most congested city areas in the United States. Through one intersection alone—that at Dewey Square in front of South Station—pass 55,000 vehicles and more than a quarter of a million people every day. To do the necessary work while keeping traffic and pedestrians moving is a problem.

The tunnel is claimed to be the widest in the world—up to 200 ft in places. Because of its location, both design and construction have been difficult, but the actual building procedures are not unusual: The demolition contractor cuts a block-wide swath and cleans up the area above ground, then Barletta's backhoes and bulldozers take over.

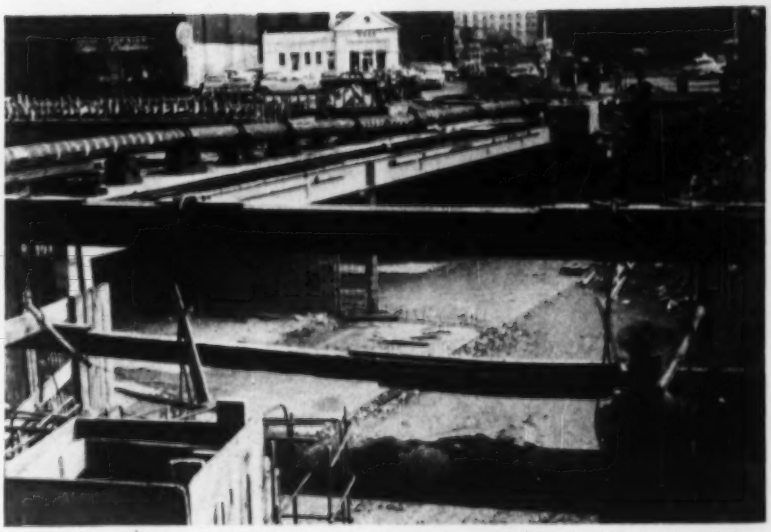
In areas where the depth of the cut exceeds 15 ft—it runs from street level to 54 ft below grade and averages 34 ft in depth—the excavation is made in two almost equal stages. The nature of the hard yellow clay encountered to date is such that almost vertical walls, up to 30 ft high, have remained in place for as much as nine months without any form of support. Only where adjacent streets or utility installations make it necessary is sheeting used. In such cases, the outside 20 ft of the cut is not completely removed until after the sheeting has been installed. Other than this, the excavation and construction procedures are the same throughout the job.

• **Problem I**—The excavation is carried to 1 ft below subgrade. Then, a 1-ft layer of bank run gravel is placed, spread and compacted by a bulldozer. A 6-in. unreinforced concrete base is placed over the gravel and covered with membrane. Next comes a course of brick—with the brick placed flat and having a minimum space of ¼ in. between each one. The gap is filled with mastic, which is immediately mopped over the entire course. A 2-in. protective layer of concrete finishes the sub-base, and the job is ready for the floor slab.

The floor slab is of variable thickness—in the covered sections from 48 in. to 60 in.; in the uncovered approach areas, from 3 ft to 14 ft thick. The reason for this is simple. The street elevation at the start of the approaches is less than 7 ft above high water elevation of the Fort Point Channel, which at the northern approaches, is only 350 ft away. To lick the flotation problem created by the barge-like shape and characteristics of the tunnel, sufficient weight must be superimposed to maintain equilibrium.

In the absence of superstructure, the floor thickness in the approaches becomes a function of the uplift . . . therefore, the deeper the cut, the thicker the floor.

• **Solution, Reinforcing**—Principal reinforcement of the main floor slab consists of 36-in., 300-lb WF transverse beams spaced 5 ft on centers and running up to 164 ft in length. Any beam up to 105 ft long is installed in one piece—longer lengths are spliced with high strength bolts.



(2) Gas line rests on tunnel roof; water main hangs from H Beam bridge. Rods and form (left foreground) are for shaft of utilities tunnel.

To support these beams until the slab is cast, the contractor first places, directly on the 2-in. protective layer, three longitudinal and parallel pads, each a foot wide, as long as the section permits, and to the proper height for the bottom of the beams. By controlling the top elevation of the flat pads installation of the WF beams involves nothing more than laying them on the pads. No shimming or blocking is needed.

• **Solution, Bracing**—In areas where the walls of the cut must be sheeted—either with interlocking steel sheeting or soldier beams and horizontal wood sheeting—an interesting bracing procedure is used. Rails are set vertically on 4-ft centers in the floor slab, with 3 ft 6 in. buried in the concrete and about 12 in. sticking out. Then 12 x 12-in timbers are placed in front of the rails.

This provides, in effect, a doweled toe piece for the 14 x 14-in. kickers which support the top of the sheets or soldier beams.

Principle advantage of the method lies in the fact that it offers a minimum of obstruction to subsequent construction operations, and for the most part eliminates the need for intermediate shifting of diagonal struts.

Excavation is carried to grade on all but the outside 20 ft of both sides of the roadway where, except for the natural sloping action of the ground, it remains untouched. The sheeting is installed to the proper depth, and left unbraced until after the central part of the floor slab is complete. As soon as this operation is complete and the sheets are braced, the unexcavated 20 ft edge is taken out by clamshell, and the procedures used in the central areas are repeated for the outside. The diagonal struts remain in place until after the superstructure steel is up when they are replaced by short horizontal struts connected to opposing ends of the roof beams.

With the side areas cleared, the interior partition and the exterior walls are reinforced, formed out and concreted. Outside walls are waterproofed with a four-ply membrane, which is in turn protected by a 4-in. block wall. Plywood forms are held directly against the top flange of the 36-in. roof beams, and a reinforced 9-in. slab is placed for the tunnel top. When the roof concrete is sufficiently hardened, side backfilling is completed, the tunnel is covered with 4 ft of course gravel compacted in 6-in. layers. A bituminous pavement, over the top of, and parallel to, the tunnel finishes the operation.

• **Problem II**—Biggest headache for the contractor is maintenance of electric power lines. Technically not his responsibility, he nonetheless had to find the lines, protect them, provide new passage for relocated lines, and coordinate this movement with the rest of his work.

Under any conditions this is a big order—in Boston, where many of these lines were laid at or before the turn of the century, it could be next to impossible. Fortunately for everyone concerned, the Boston Edison Co. has good records and is cooperating to the extent of keeping men on the job at all times—and with good reason.

. . . Utilities and traffic uninterrupted by tunnel cut

(3) Demolition moves just ahead of construction. Pads (arrow) simplify placement of floor beams.

(4) H. Beam, with web horizontal, carries wires. Dirt packed between flanges protects the installation.

In all there are 184 known electrical installations, which must be rerouted, including 24 secondary lines, 12 distribution supply lines, 112 A.C. feeders and 24 A.C. transmission lines carrying up to 25,000 volts. So long ago were some of these placed that, among lines already rerouted, several did not contain wire, but consisted instead of 1-in. square copper bars encased in clay ducts and separated by hand-poured insulation material. According to Boston Edison men, this method of high voltage installation has not been used in the city since 1905.

In addition to the tangled web of power lines, there are also many other wire installations to be considered including those of Western Union, New England Telephone and Telegraph Co., the fire department, the police department, the Boston Low Tension Wire Association, and the Massachusetts Transit Authority.

• **Solution**—As fast as any wire installation is found, it is temporarily rerouted so as to be out of the area of work. In some cases this is done by splicing out and simply running around the end of the tunnel. In the case of centrally located wires, temporary bridges are erected of H-beams laid across the cut, with the webs horizontal and the wires placed on the webs between the flanges. Dirt is packed in over the wires to stabilize and protect them.

Before the job is finished all the Edison wires will be transferred to their final location—either one of two tunnels being constructed across the cut under the floor of the vehicular tunnel. These wire tunnels consist of 8 x 8-ft horizontal boxes connected to the surface at either end by vertical shafts 8 x 8-ft x 40-ft high.

• **Problem III**—The pipelines encountered are many and varied, but they all fall in one of two categories—pressure or gravity flow, with only the sewer lines falling in the latter group. In the former come the pipes of the Edison Steam Co.; the gas lines—two 30-in., and three 12-in.; water lines—high service, low service, and fire; and 20 other lines ranging from 12 in. to 30 in. in diameter.

• **Solution**—The steam and gas lines are diverted as little as possible, by maintaining them during excavation on cribbing, and are then placing them on more substantial supports during the remainder of construction. In one case, a 30-in. gas line was carried over the cut on H-beams until the tunnel roof was placed. When the concrete was able to support the load, the line was then cribbed from the roof, where it will remain until its final placement.

Water supply maintenance was expensive although not difficult. Two parallel lines a 12 in. and a 16 in. each 1200 ft long were run parallel on the east side of the cut. Into these diversion lines are connected all intercepted pipes.

The sewers, particularly those on the west of the cut, posed a more difficult problem. In all, the tunnel cuts ten gravity flow lines ranging in size from 24 in. diameter pipes to 3 x 5-ft boxes. To handle the sewage, the contractor has laid a 48-in. reinforced concrete pipe parallel to the south-bound lane. From Essex and Columbia streets (midpoint of the work) this line goes both ways around the ends of the cut to connect with existing 72 in. sewers three blocks away at Kneeland on the South and Oliver Street on the North.

The big worry in the relocation of the sewers was maintaining sufficient rate of flow to prevent settlement of solids. Because of the care taken during temporary installation, there has been no difficulty yet, and according to resident engineer George Lybrand, none is anticipated.

• **Problem IV**—An equally difficult though more conspicuous maintenance problem is that of traffic—both vehicular and pedestrian. Because the area affected by the tunnel is one of the busiest in the city, specifications require that all of the streets bisected by the cut be kept open at all times. To do this, the contractor has resorted to the most obvious yet most trying method possible—and not through choice, but because, in the absence of room for detours, there is no other way to handle the problem.

• **Solution**—The builder excavates between the streets, completes his tunnel in the excavated area, then detours traffic over the roof of the completed sections. This leaves the street area available for a complete repetition of the construction cycle.

While quite satisfactory from the standpoint of the general public, the piecemeal construction of a tunnel complicates, in many ways, the work of the contractor. To begin with, the volume of traffic—both pedestrian and vehicular

—is so great that the temporary detour roads must be class A installations, complete with pavement, sidewalks, curbs and lights. Construction of the detours is, therefore, expensive and time consuming.

A second and equally difficult problem is one of access. In the larger sections between the cross streets, ramping to the work area is the solution. In the short intermediate sections under the streets, where ramping is almost impossible, access is through the already finished tunnel sections between the streets.

• **And One More**—There is yet one problem facing the contractor, the engineers, and the utility companies. It is constructing the 200-ft, $2 million crossing of Dewey Square in front of South Station. Here, at what is undeniably the busiest intersection in the city, the arch-shaped roof of a subway tunnel projects above, and at right angles to, the floor of the vehicular tunnel. Here, Boston Edison estimates that it alone will spend almost a million dollars removing and relocating its installations. Here, Barletta, to complete his work, must remove the arched subway tunnel roof and replace it with a flat roof. And all this must be done while subway trains run beneath, and surface traffic moves above. Obviously, this phase of the job is going to require a great deal more of the same element of caution, cooperation, and know-how which has characterized the work to date.

How to Reap Added Runoff

Detailed study of Salt River watershed shows how vegetation changes could net an extra 285,000 acre-ft of water a year

Arizona's water-short Salt River Valley can garner an additional 285,000 acre-ft of water a year for its irrigation reservoirs by changed management of the Salt River watershed. This is the opinion of a group of specialists, headed by George W. Barr of the University of Arizona, who have proposed a program to increase runoff by changing the face of the watershed.

With only 10% of the 12-million acre-ft of water falling annually on the watershed reaching the reservoirs, the added runoff would be a 20% jump in surface water available.

To increase watershed runoff, these changes are proposed: (1) drastic thinning of ponderosa pine stands; (2) selective clearing of many pine areas of low productivity; (3) thinning of spruce to favor snow deposition; (4) expanded eradication of juniper and pinyon, and (5) modification of stream-side vegetation to reduce loss of water between point of production and the reservoirs. Through these changes, water now being used for vegetation growth will be freed to go into storage.

• **Why the need**—A substantial portion of Arizona's agriculture is based on pumped irrigation—groundwater. Greater pumping lift necessary to get the dwindling supply has raised the cost of water. And at the 1956 rate of groundwater depletion, abandonment of 500,000 acres of farmland is considered inevitable in the next 10 years.

Modification of the watershed growth involves loss of certain values (chiefly timber harvests) with gain of others—additional surface water runoff plus an increase in grazing value. With all the different economic factors considered, the experts have calculated that replacing growth with water production in places, and combining the two in other areas, would be financially sound. A speed-up harvest of the timber would be disadvantageous to the lumbering communities. But this must be weighed against the permanent loss of agricultural production if more mountain water for irrigation is not forthcoming. And as far as total yield goes, the group estimates that, because of the nature of the forests in question, the present value of a "liquidation cut" is greater than all future timber harvests. The timber factor had to be investigated in detail, since the greatest increase in water yield can be obtained from the highest portion of the watershed—and it is there that the ponderosa pine and spruce-fir grow.

The economic feasibility of modification of the watershed is based on the fact that the irrigation value of additional water is figured to be $8.00 to $9.50 per acre-ft at the point of origin of that water on the watershed. These figures take into account the distance to a reservoir, whether water develops power en route to the farm, and replacement of higher-cost water pumped from the ground.

• **The program**—It is recommended that first work be in those areas where the greatest increase in water can be obtained for the money spent. The panel also calls for an intensive soil-vegetation survey to run concurrently with the action program.

A total of 3-million acres is looked upon as treatable area for the modification program. This includes areas where the ponderosa will be thinned out, juniper-pinyon will be burned and grass covering will be provided or extended.

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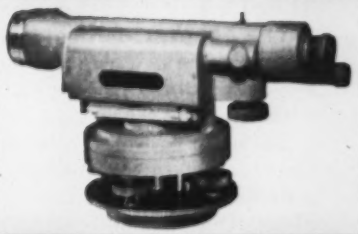

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BRIEF SPECIFICATIONS	Shovel	Dragline	1250 Crane	1250-SC Crane
Rating	3 yds.	.....	85 tons	100 tons
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Crawler width (32-in. treads)	13′-5″	13′-5″	13′-5″	16′-0″
Crawler width (42-in. treads)	14′-3″	14′-3″	14′-3″	16′-10″
Cab width	10′-6″	10′-6″	10′-6″	10′-6″
Cab height	12′-7¼″	12′-9¼″	12′-9¼″	12′-9¼″
Rear end tail swing	15′-8″	15′-8″ & 17′-1″	15′-8″ & 17′-1″	17′-1″
Gantry height (folded)	14′-1¼″	14′-3¼″	14′-3¼″	14′-3¼″
Gantry height (working)	14′-1¼″	23′-10″	22′-1″	22′-1″ & 28′-9″
Boom length	28′ & 45′	110′	60′ to 150′	100′ to 200′
Handle length	22′-9½″ & 32′-9¼″	.....	.....	.....
Jib length	.....	.....	20′ to 50′	30′ to 50′
Boom length, including jib	.....	.....	200′	250′

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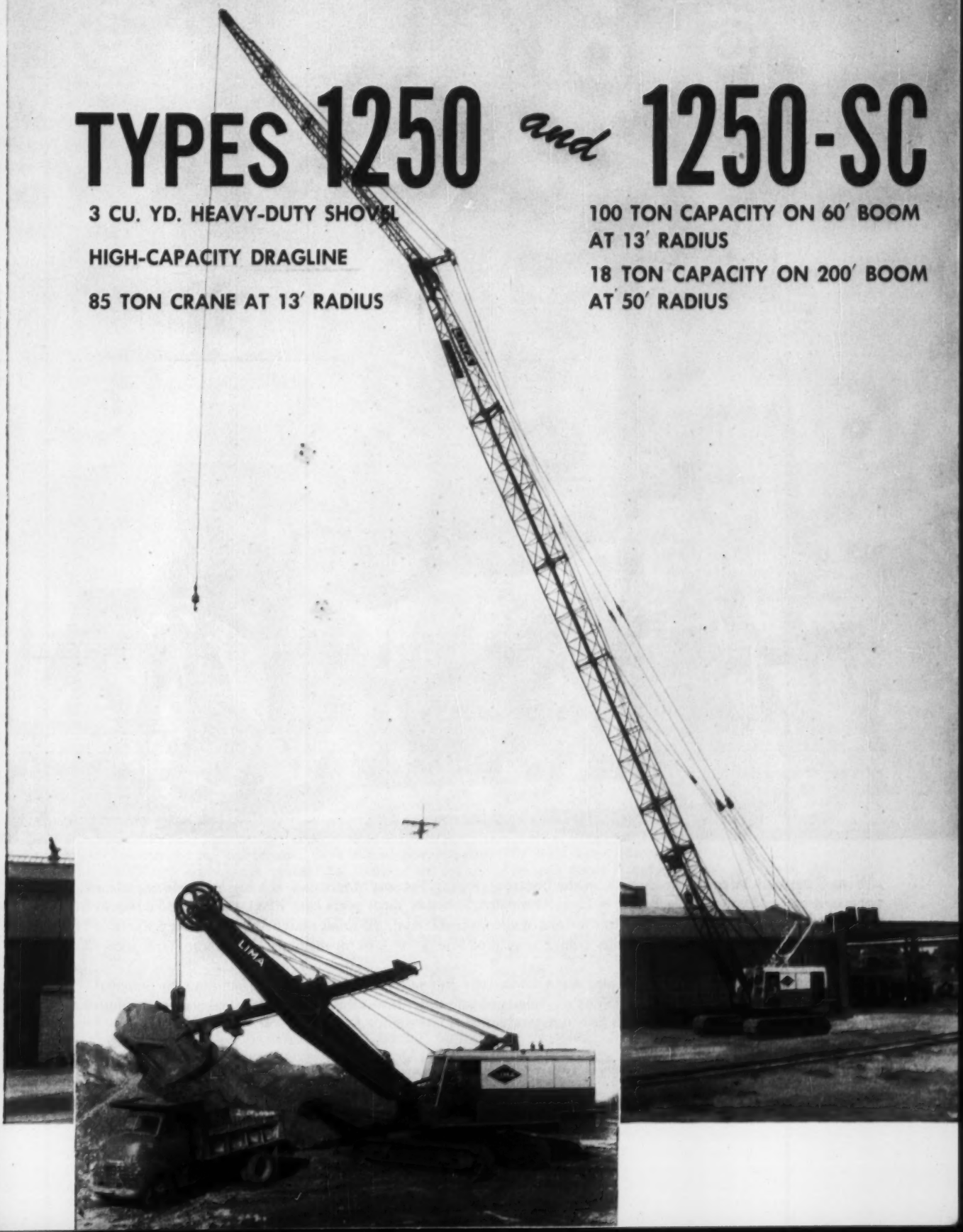

Wire Rope at Work—At Hawley, in the beautiful, rolling Pocono Mountains, is a big hydroelectric plant operated by the Pennsylvania Power & Light Company. Thirty or more years ago, PP&L constructed a wood-stave flow line connecting the plant to the Lake Wallenpaupack dam, 3½ miles away. Approximately 8500 ft of this system was recently replaced with a huge steel pipe line, 14 ft 8 in. in diameter. The photograph shows one stage of construction work.

Lifting the ponderous fabricated pipe was a job in itself. But with Bethlehem wire rope handling the principal lifts, the task of moving the heavy sections was managed smoothly. It was the type of job that this strong, tough rope always takes in stride, no matter how heavy or cumbersome the load.

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Main columns of welded structural steel, to be sheathed in stainless steel, stand outside of curtain walls to give 19 floors of column-free areas—one of several structural and architectural innovations in the 19-story skyscraper now under way at Dearborn and Monroe St. in Chicago's Loop.

Inland Steel Builds a New Home

Engineering ingenuity, architectural vision and construction know-how are being fused together into a new 19-story office building at the corner of Dearborn and Monroe, in the heart of Chicago's Loop.

It's the new home office of Inland Steel Co., designed for a maximum occupancy of 1,500 persons. Inland, itself, will occupy the top eight floors.

The 5,000-ton steel-frame office building and its adjoining service tower were "topped out" on Nov. 1. Floor construction is scheduled for completion by Feb. 2; the two buildings will be "closed in" by April 1; and initial occupancy will take place next fall.

• **Architectural innovations**—The 19-story office building, rising 252 ft above street level, and its 25-story service tower, extending 80 ft higher, contain a number of architectural and design innovations (ENR, Mar. 17, 1955, p. 24).

Perhaps the most striking one is the arrangement of its 14 main columns. Instead of being enclosed within the building in customary fashion, they extend up along the outside face of exterior walls, like giant ribs.

Seven columns are spaced about 26 ft apart along the Dearborn St. side of the building, and seven along the opposite face. They are welded structural steel, 4 ft deep by 22-in. wide, and faced with stainless steel.

• **No interior columns**—The two lines of columns are connected at each floor with 58-ft structural steel girders, which carry each entire floor, eliminating all interior supports.

Typical floors have an unobstructed area 177x58 ft, totaling 10,250 sq ft. The office building, ith its three-level basement, the two-story annex and the service tower contain a total floor area of 300,000 sq ft.

Parking for 60 cars will be provided at the first-basement level. Mechanical air conditioning, heating and cooling equipment will occupy the other two basement levels.

• **Lightweight curtain walls**—Exterior walls will be stainless steel and glass. Spandrel panels only 2 ft 10 in. deep will be 16-ga stainless steel, backed up with 2 in. of concrete fireproofing. Fixed windows, above the second floor, will be double-paned glass.

This combination curtain wall will weigh only 25 psf, compared with 40 psf for masonry walls and high window sills. Plate glass will be used in the first two stories.

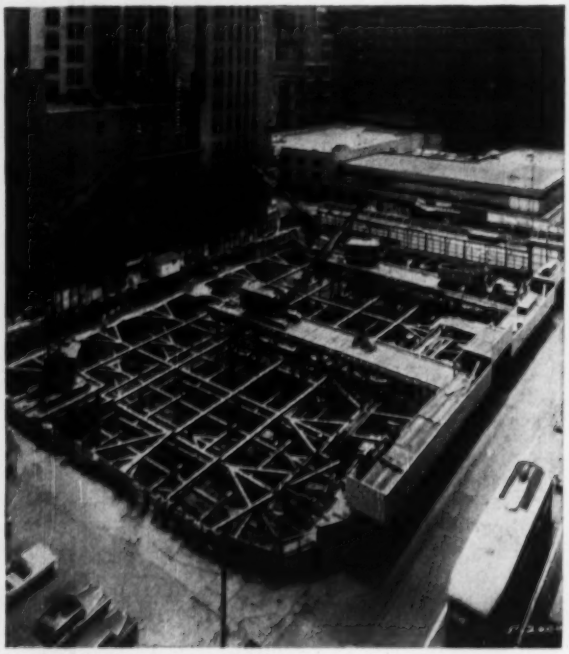
Adoption of this thin, lightweight exterior curtain wall saved about 200 tons of structural steel, according to the designers. Interior walls will be movable steel partitions for maximum flexibility of office arrangement.

In exterior appearance, vertical lines supplied by the seven stainless steel exterior columns and window mullions will dominate the 180 ft width of building along Dearborn. Viewed from Monroe St., horizontal elements supplied by the spandrel panels will give an appearance of wafer construction.

• **Lightweight cellular floors**—Although the office floors are lightweight, they are designed to carry a load of 100 psf.

. . . Inland Steel builds a new home in Chicago

PILE DRIVING—Two cranes with long leads drove 850 tons of H-beam bearing piles through 30 ft of overburden to "ultimate refusal" 85 ft below street level while two smaller cranes drove 250 tons of steel soldier beams around the periphery of the 206x132-ft area of excavation. A fifth crane was added later to speed the work.



PRESTRESSED CROSS-BRACING under 75-ton pressure against horizontal steel wales and vertical soldier beams prevented settlement of adjacent buildings and streets, as three clamshells excavated the 206x132-ft "hole" to 35 ft below street level. Timber-decked steel trestles served as working ramps for the cranes and trucks.

Structurally, the floors are cellular panels of 16-ga galvanized steel, topped with 2½-in. of lightweight concrete. Over this will be laid the finished floor covering.

The cellular deck, or sub-flooring, is welded to supporting 16-in. rolled steel beams, which, in turn, are carried by the builtup girders that span 58 ft between the exterior columns.

Longitudinal raceways 6 in. c-c in the sub-flooring will distribute the electric and telephone services; also, hot or cold air to the perimeter of the building.

Floor to floor height is 13 ft, and clear ceiling height is 9 ft.

• **Complete air conditioning**—Since the window wall and stainless steel panels completely enclose the building, complete air conditioning is required. Hot and cold air will be distributed in separate ducts to the office area where it will be mixed to the desired temperatures.

Air at controlled temperatures then will enter the cells in the steel deck subfloor traveling to perimeter grilles for distribution to the space. In this manner, the deck becomes a radiating element increasing the degree of comfort in the space. Interior air conditionmg will be supplied on a modular pattern through ceiling diffusers.

Cleaned and cooled air will be supplied by two 475-ton capacity refrigeration compressors, either one of which can carry the estimated cooling load in an emergency. Air for heating will be blown over steam coils. Heat will be supplied by two 500-hp boilers, plus a third summer unit of 150-hp rating.

Ceilings will be perforated, steel acoustical panels, with recessed fluorescent lighting and air diffusers and exhausts.

• **Keeping it clean**—Keeping the great expanse of glass and stainless steel free of the Windy City's smoke and grime will be a big job. But adequate provisions will be made to give the entire building a bath with window-washing frequency. This will be done by the use of a special scaffold lowered and raised mechanically from a crane running on tracks around the perimeter of the roof.

A two-man crew will be able to do the entire job of washing the stainless steel and glass skin in about 10 days, according to one estimate.

• **Service tower**—The 25-story steel-frame service tower, serving the 19-story office building, is about 50 ft square. It will house six automatic passenger elevators and one freight elevator.

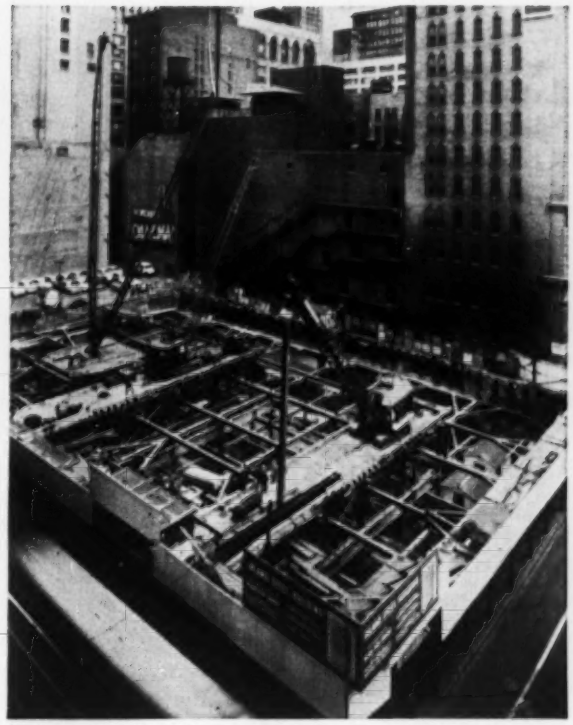
There also will be two sets of stairs, washrooms and all mechanical services, including a mail conveyor system.

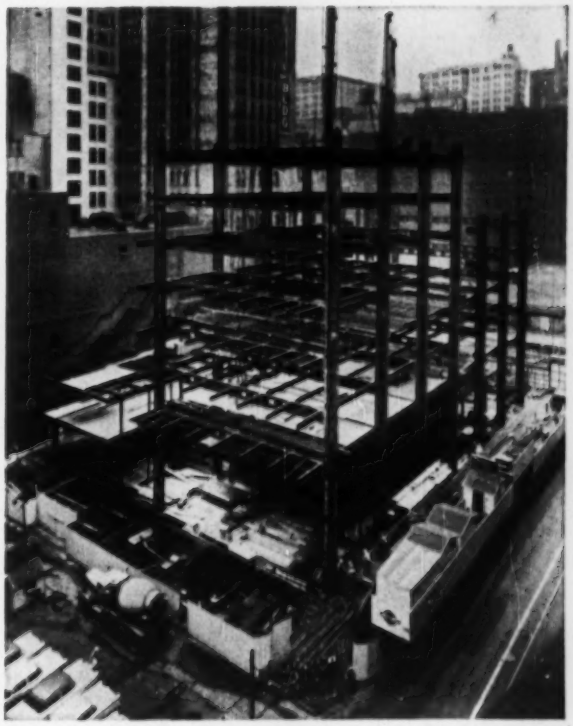
The separation of all these elements from the office floors leaves them with a clear space 58 ft wide by 178 ft long. Within this space, which is completely free of structural columns, offices can be arranged with complete flexibility, according to the architects.

• **Major quantities**—Although Inland's new office building and service tower are predominantly steel from roof deck to foundation piles, which were driven 85 ft below street level, nearly 1 cu yd of concrete will be used for each ton of steel. A total of 9,800 cu yd of concrete will be used, compared with 10,000 tons of steel.

Major steel items break down something like this: 5,000 tons of structural steel skeleton; 850 tons of bearing piles; 250 tons of soldier beam piles; 360 tons of steel beam cross-lot bracing; 750 tons of steel cellular subflooring; 400 tons of stainless steel sheath; 400 tons of reinforcing bars, and 300 tons of galvanized steel ducts. There are also 3,700 cu yd of lightweight concrete and 5,500 cu yd of structural concrete.

• **Construction challenge**—Just as the architects and designers called on their vast knowledge and ingenuity in designing the 19-story building—first skyscraper to be built in Chicago's Loop in the past 20 years—so did the contractors





STEEL ERECTION was started by a guy derrick and crawler crane (left) and completed by two guy derricks (right), which were jumped two floors at a time as erection continued. It took 12 hours, 120 lb of welding rod to field splice one main column.

develop construction procedures that were safe, fast and efficient.

The biggest single challenge, perhaps, was bracing the sides of the foundation excavation to avoid street settlement or subsidence of adjacent buildings. The big hole measured 206x132 ft and extended 35 ft below street grade.

Heavily traveled Dearborn and Monroe St. passed perilously close to the west and south sides of the excavation. A 20-story building on caissons stood only a few feet from the east line of excavation site, while two theaters and a 17-story building were located near by.

Foundation work got under way early last January. In general, this was the sequence of operations: Drive bearing piles and soldier beams; then excavate, install cross-lot bracing and place timber lagging between soldier beams in coordinated sequence and in progressive stages; and finally, cap the pile clusters with reinforced concrete pads ready to receive the building columns. At the same time, construct the big cantilever retaining walls enclosing the site.

• **Controlled delay**—To insure maximum safety and orderly construction progress, the excavating contractor adopted a so-called "controlled-delay" method of bracing the open excavation. Its main components were steel soldier-beam piling with timber lagging, and prestressed steel-beam cross-bracing with H-beam piles supports at intersections.

Installing the soldier beams—so named because they were spaced with military precision 6 ft apart around the excavation—took time, as did the installation of the intricate system of prestressed cross-lot bracing. But this was a "controlled-delay," the duration of which could be included in a calculated construction schedule.

On the other hand, it guarded against the possibility of an unpredictable cave-in or subsidence of adjacent buildings which could delay the job seriously or, worse yet, endanger life and damage property.

• **Pile driving**—Perhaps the biggest departure from traditional foundation designs for big buildings in Chicago's Loop was the use of steel H-beam bearing piles—instead of concrete or timber piling, or conventional concrete caissons. A total of 450 H-beam piles was driven to support the office building and service tower. They were driven to bedrock, which in this case is 85 ft below street grade.

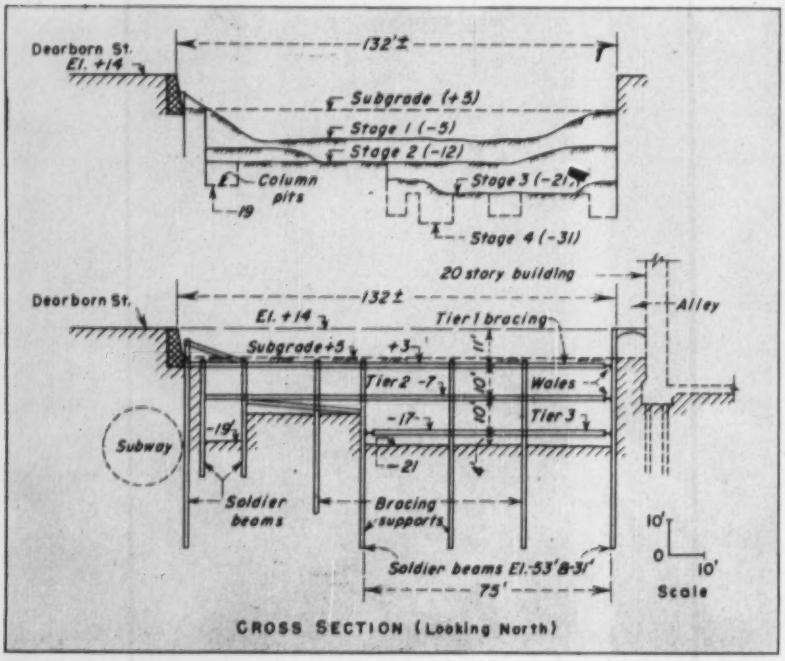
Of this number, 300 were 14-in. 73-lb piles, designed to carry maximum loads of 120 tons each. The rest were 10-in. 53-lb sections, designed to carry 60 tons each. They were driven to so-called "ultimate refusal," as measured by a penetration of less than 1 in. under the application of 20 blows made by a 12-ton hammer.

Loading tests on previously driven test piles at the site indicated that the 14-in. piles could safely carry 240 tons each and the 10-in. piles, 120 tons. The suitability of steel H-beam bearing piles to carry heavy foundation loads in Chicago's Loop area had been determined through tests conducted by Armour Research Foundation of Illinois Institute of Technology (ENR, Apr. 5, 1956, p. 90).

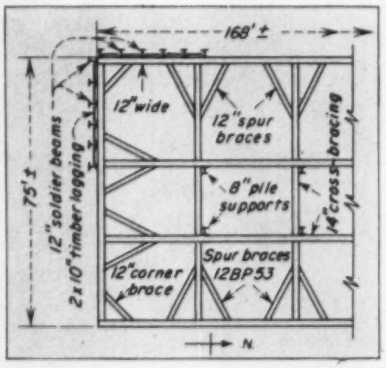
• **Follower beams**—Special heavy "follower beams" were needed for driving the bearing piles, since pile driving preceded basement excavation. The pile-driving rigs operated at an elevation of about 9 ft below street level, which was the average elevation of the site after it had been cleared of debris.

The bearing piles, ranging in length from 50 ft to 60 ft, were placed in excavated holes and driven to a maximum depth of 85 ft below street level, or about 75 ft below the elevation of the bottom tracks of the crawler cranes. This necessitated the use of heavy steel follower beams about 33 ft long, which functioned as extensions of the piles being driven. They were removed after each driving and used for the next pile.

. . . Inland Steel builds a new home in Chicago



COORDINATED OPERATIONS—Four-stage excavation (above) was coordinated with the installation of three tiers of prestressed bracing (below). Stage 4 excavation is for column pits. Alternate soldier beams were driven to depths of 45 ft and 67 ft.



TIER 3 BRACING (shown in plan), 31 ft below street level, covered an area about 168x75 ft. Steel-beam pile supports and special braces assure rigidity.

• **Driving rigs**—Driving the 14-in. and 10-in. steel bearing piles to carry the building columns and the 10-in. and 12-in. soldier beams was a noisy operation. But the job was done as quickly as possible by operating an incredible amount of power equipment in the confined working area and by working two shifts per day.

Pile-driving crews worked 10 hours per day, while the night shift unloaded the piles and soldier beams, repaired and maintained equipment and hauled debris away. Close coordination had to be used in ordering foundation steel, since only a two-day supply could be stored at the site.

• **Five cranes**—When pile driving got under full swing, in February, five crawler cranes were in the "hole." Two cranes, with 95-ft and 85-ft leads, drove the 14-in. and 10-in. H-beam bearing piles. A third crane operated as a service rig for the two big pile drivers, while the other two cranes drove the 10-in. and 12-in. soldier beams. Alternate soldier beams were drawn to depths of 76 ft and 53 ft below street level.

The main columns for the 19-story office buildings are supported on pile clusters of nine piles each. Twelve of the pile groups have three "batter" piles in each group to give added structural stability to the building. These piles were driven on a batter of 2 in. per foot.

One set of leads for driving the bearing piles handled a single-acting hammer; the other, a double-acting hammer. Both delivered blows of 24,000 ft-lb, or more. Two smaller hammers, for driving the soldier beams, developed 8,750 ft-lb of energy per blow.

• **Vapor steam generators**—The two big hammers and one of the smaller ones operated on steam. The other one operated on compressed air.

Three vapor steam generators furnished steam at a working pressure of 160 psi for the pile-driving rigs. Each one was capable of producing 3,500 lb of steam per hour. Starting with cold water, they could develop full working steam pressure in about 2 min.

Another interesting feature of these oil-fired steam generators was their ability to hold this constant 160-psi pressure for sustained driving periods lasting 15 minutes. Then, operating automatically, they cycled off during "make-ready" periods for driving the next pile.

An average daily crew for pile driving and allied operations totaled about 100, with three-fourths of the crew on the 8 am to 4 pm shift and the other on the 4 pm to midnight shift.

The normal day crew during pile driving included a superintendent, a field engineer, 4 pile-driver foremen, 18 pile-driving men, 9 crane operators and 6 oilers, a carpenter foreman and 4 carpenters, three dock-builder foremen, a labor foreman and 16 laborers, a master mechanic and a compressor operator. Clerical help included a paymaster, job accountant, material checker and clerk-typist.

• **Excavate around-the-clock**—By the time the last of the bearing piles and soldier beams had been driven, near the end of March, excavation operations were getting under way on an around-the-clock basis.

To begin with, a 1½-cu yd backhoe went to work. It started at subgrade elecation +5 and made a 10-ft cut to El. −5, which permitted the installation of the top tier of cross-bracing. The remainder of the 25,000 cu yd of excavation was removed by three clamshell cranes, which dug between the tiers of cross-bracing as they were installed and prestressed.

The cranes operated on steel trestles decked with 12x12-in. timbers, built out from Dearborn St. at ground level. They also installed the cross bracing. By the end of the first week in April, the excavation was one-fourth completed and installation of the top tier of cross bracing had just gotten under way.

• **Four-stage excavation**—The excavation was made in four stages, using three tiers or levels of cross-bracing. Street level is at El. +14 (14 ft above Chicago Datum). Excavation operations began at El. +5, which was the average subgrade elevation of the site following demolition and removal of old buildings and basements occupying the site.

Stage I excavation extended over an area 206x132 ft, and from El. +5 to −5, a distance of 10 ft. Stage II excavation was carried on down 7 ft to El. −12. Stage III went on down 9 ft to El. −21, which was 35 ft below street level, with the area of excavation re-

VERTICAL LINES of seven stainless steel-clad exterior columns dominate the Dearborn St. side of the 19-story office building, while shallow spandrels and vertical mullins impart a wafer-like appearance to the Monroe St. side.

duced to 168x74 ft. Pits for driving some bearing piles were excavated to El. −31.

• **Three-tier bracing**—The three tiers of cross-bracing were placed 10 ft apart vertically. Tier I was placed at El. +3 (11 ft below street level); Tier II at El. −7; and Tier III at El. −17.

Each tier was a horizontal grid of 10-in., 12-in., or 14-in. steel H-beam bearing piles extending lengthwise and crossways of the excavation and serving as bracing struts. They end-butted against horizontal steel-beam wales. These, in turn, bore against the inner flanges of the 12-in., 53-lb. soldier beams, which had been driven vertically into hardpan, from 45 to 67 ft below street level.

Soldier beams were spaced 6 ft apart, and 2x10-in. timber lagging was placed behind the exposed flanges for the purpose of preventing the face of the cut from sloughing.

Corner braces welded to the wales, and spur braces welded between the wales and cross members, added rigidity to the bracing system. The tiers of bracing were supported vertically by 8-in., 36-lb H-beams driven to hardpan and welded to the longitudinal and transverse struts where they crossed each other.

• **Prestressed bracing**—After each tier of cross bracing was assembled in place, the horizontal 10-in., 12-in. or 14-in., H-beam horizontal struts were prestressed. This was the crux of the entire delicate situation. For the heavy superimposed loads of adjacent structures tolerated little movement of the line of soldier beams.

A permissible tolerance of 1½-in. movement either inward or outward from the theoretical was deemed safe. But in reality, the movement of the tops of the lines of soldier beams varied less than 1-in. either way from the theoretical.

In the Tier I bracing, 11 ft below street level, the main horizontal struts running lengthwise of the excavation (206 ft north-south) were prestressed 75 tons each.

The east-west struts were prestressed 25 tons.

In the other two tiers, all struts were prestressed 75 tons each.

In prestressing a line of steel-beam bracing, it was first cut in two and secured. After this was done, two hydraulic jacks were attached to the free ends of the beam and the required amount of prestress (compression) was induced in the bracing.

And then finally, the cut ends of the beam were welded together before releasing the pressure from the hydraulic jacks.

By June 1, the third tier of cross-bracing had been installed and prestressed and the final excavation cut had been made to El. −21. Forms were about ready to receive ready-mixed concrete for the heavily reinforced retaining walls along the sides of the excavation.

Some sections of these walls are 35 ft high.

As the tops of the 14-in. and 10-in. H-beam bearing piles were uncovered during excavation, they were cut-off to required elevation and capped with a 16-in. square ⅞-in. steel plate, welded in place.

There were 55 pile clusters, containing from 4 to 16 piles each. They were capped with reinforced concrete pads varying from 6x6-ft by 3 ft thick, to 16x16-ft by 7 ft thick.

These pads, in turn, support the building columns.

• **Steel erection**—Erection of the 5,000 tons of structural steel in the project got under way about the middle of July and was finished by Nov. 1, with field welding completed a couple of weeks later.

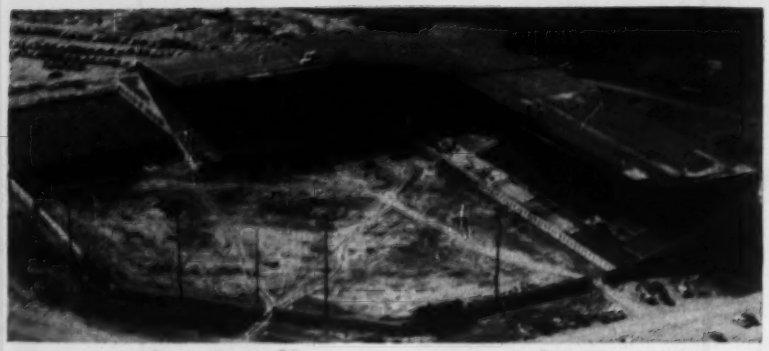
At the start of erection the steel was set in place with a guy derrick and a crawler crane operating on the steel trestle. As erection got up above the ground line, this crane was replaced with a second guy derrick. Starting from the first floor, they were jumped two floors at a time as erection progressed upward.

A sound-powered telephone system was used for hoisting instructions between derrick signalmen and winch operators.

Structural steel erection was a relatively quiet job.

There was no riveting. Field splices of the building columns and field connections of the framing members were either welded or bolted with high strength bolts.

• **Radiograph weld tests**—Main columns for the first and second tiers



New Joint Sealing Compound "Stays Put"
. . . keeps stadium joints sealed permanently

Determined to insure that concrete joints in the new Kentucky Fair Exposition Center and Stadium at Louisville, Kentucky would stay sealed under all conditions, Fred Elswick & Associates, Louisville, Ky. architects and engineers, set up stringent specifications for the joint sealing compound.

They called for a material that had no cold flow, that would not become soft and tacky during summer months, and at the same time bond to concrete and keep the joint sealed during extremes of temperature ranging from −10° F. to 110° F. Ease of installation was another important factor.

"VERTISEAL"—a new cold-applied, self-vulcanizing joint sealing compound manufactured by Servicised Products Corporation, Chicago, was selected for the job because it met and even exceeded the specifications set up. Tests indicated that "VERTISEAL" had great tensile strength, highly favorable elongation and penetration characteristics plus the desired absence of cold flow after cure.

Installation of the "VERTISEAL" was done by General Insulating & Roofing, Inc. of Louisville. "VERTISEAL" is a two-component material and correct quantities of both components are shipped in a single one gallon container. After mechanically mixing the components, the material was ready for installation. Caulking guns were used to apply the material to vertical joints in the stadium's risers. A pouring grade of "VERTISEAL" was mixed in the same manner and simply poured into the horizontal joints from suitable containers. J. O. Durham, Superintendent of General Insulating states: "VERTISEAL" was very satisfactory in every respect. We had no trouble in mixing or installation. Our men were able to seal vertical and horizontal joints with equal ease." Technical assistance and service on "VERTISEAL" were provided by the Manufacturers Distributor, American Builders & Supply, Louisville.

24 to 48 hours after installation, the "VERTISEAL" set up into a tough, resilient, self-vulcanizing cured rubber seal which "stayed put" and required no touch-up or further attention. "VERTISEAL" is available in either black or white, and in two consistencies—troweling and gun grade for vertical or sloping joints and pouring grade for horizontal joints. Because it is equally effective and maintains excellent bond with concrete, metal, glass or any combination of these, it is widely used as a caulking compound. Typical applications include architectural expansion joints above grade, exterior glass with metal frames, sealing panels in metal-clad structures, masonry coping, swimming pools, etc. A special "VERTISEAL" brochure is available on request from the manufacturer.

SERVICISED PRODUCTS CORPORATION
6051 WEST 65th STREET, CHICAGO 38, ILLINOIS

See us at Booth No. 104 (near Maine Turnpike and Avenue H) American Roadbuilder Show Jan. 28—Feb. 2nd Chicago Amphitheatre.

ranged from 33 ft to 42 ft long and weighed up to 22 tons each. Above the second tier they were 26 ft long, weighing up to 9 tons each. Main columns below the sixth-floor level were fabricated from steel plate up to 3 in. in thickness.

There were 154 all-welded column sections in the 19-story office and 192 shop-riveted column sections in the 25-story service building.

It required a lot of welding to field splice one of the 14 main building columns.

In the lower floors it took 120 lb of welding rod and 12 hours of welding to make one column splice. This was reduced to 60 lb and 8 hours in the upper stories, where the column sections were smaller.

Four spot-check radiographs were made on each to make sure the welds meet specifications.

An estimated 100,000 high strength bolts were used on the job.

• **Cellular floor erection**—Erection of the 188,400 sq ft of 16-gd galvanized steel cellular subflooring to carry the 2½ in. of lightweight concrete was started the last week of August. It followed closely behind erection of the columns and floor framing. By the time the building was topped out on Nov. 1, all floors of the 19-story office building had been erected and concrete placed on 15 floors.

There were several advantages in keeping the floor erection close behind the steel erection. For example, it speeded the work and increased the safety factor. It eliminated much of the conventional plank staging required on such jobs.

And it also furnished large areas for temporary storage of building materials and working decks for the various crafts.

• **Contractors and engineers**—Turner Construction Co. is the general contractor on the entire project. Louis W. Hall is project engineer.

Skidmore, Owings & Merrill are the architects. W. G. Hogenbirk is architectural superintendent. C. Douglas Monsson is project engineer for Inland Steel Co.

A total of 48 subcontracts was awarded by Turner. Some of the larger ones include: Excavation and piling, to Spencer, White & Prentis, Inc., with Harry A. Armstrong, Jr., construction superintendent; structural steel fabrication to Joseph T. Ryerson & Son, Inc., and the cellular steel sub-flooring to Inland Steel Products Co., Inc., both subsidiaries of Inland. The John F. Beasley Construction Co. erected the structural steel and cellular flooring. E. J. Delahousay was superintendent of steel erection.

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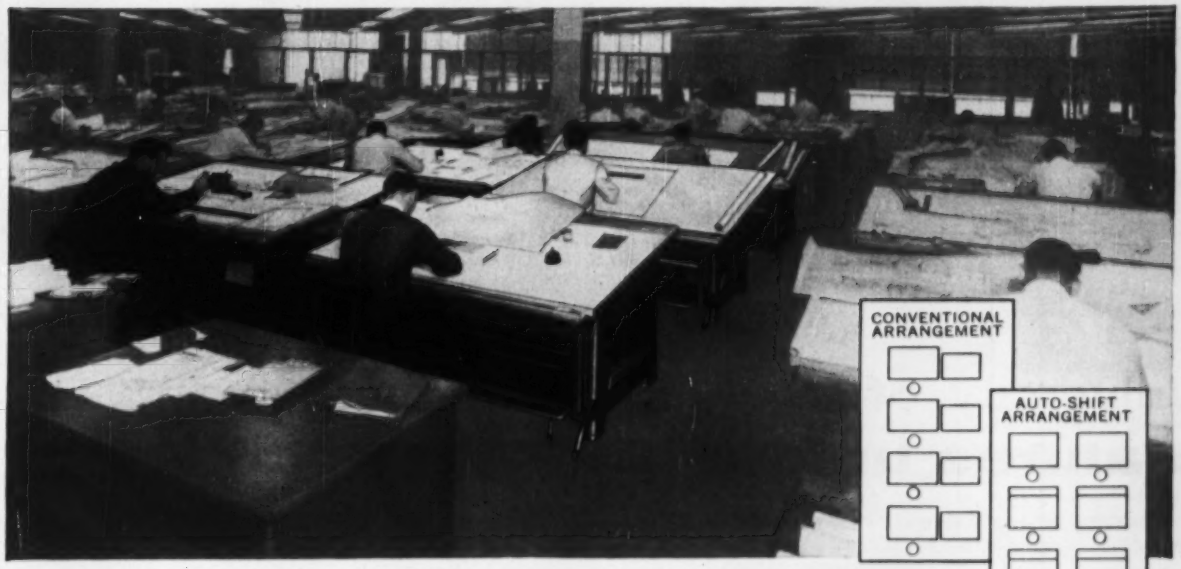

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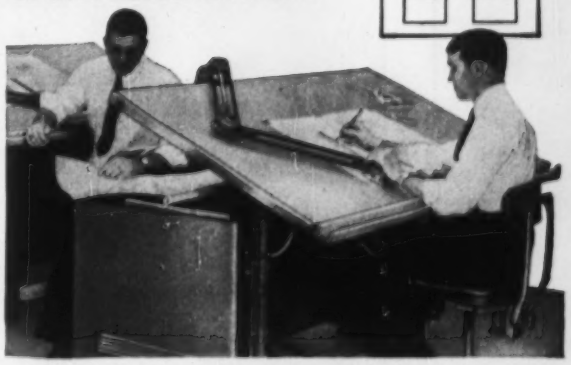

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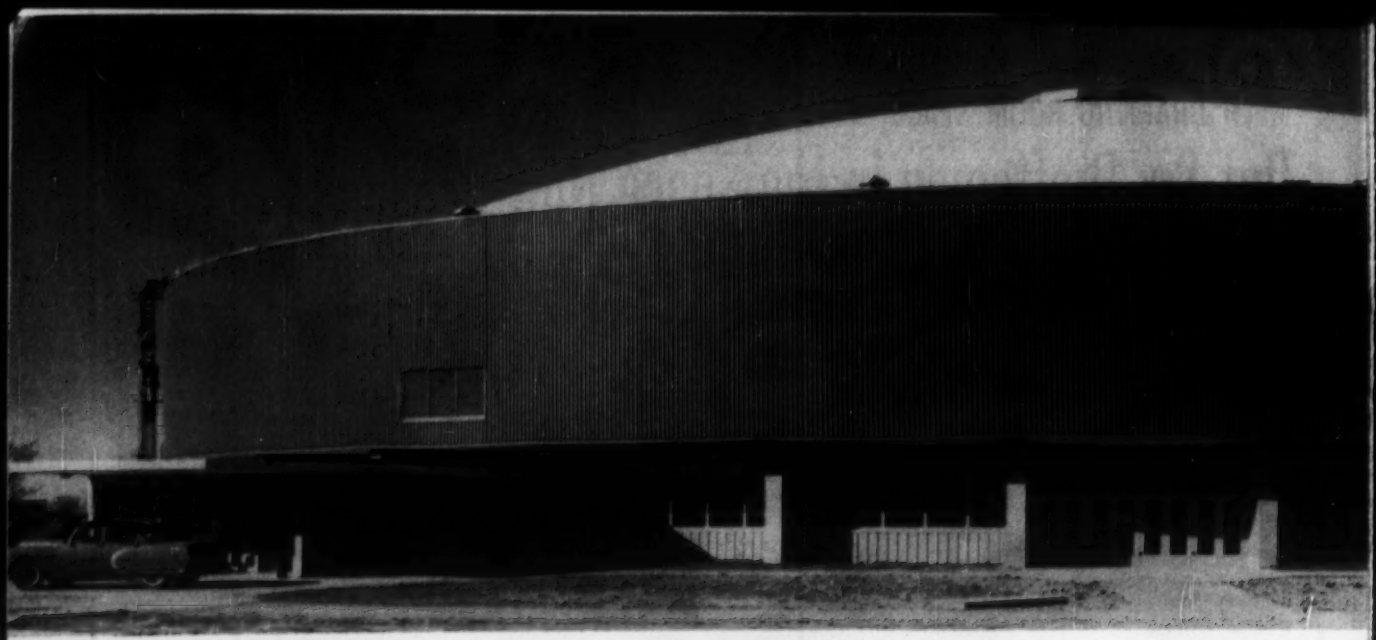
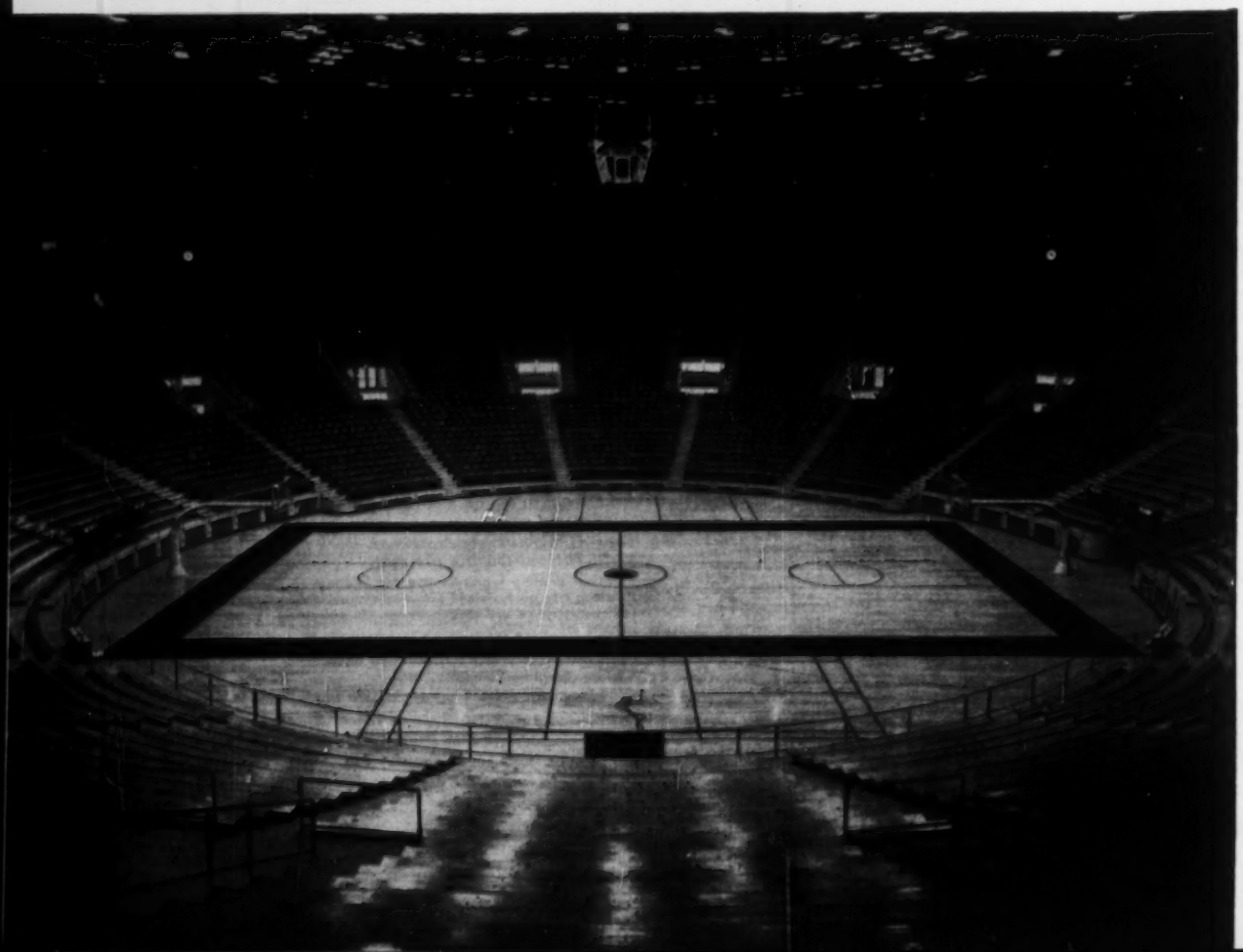
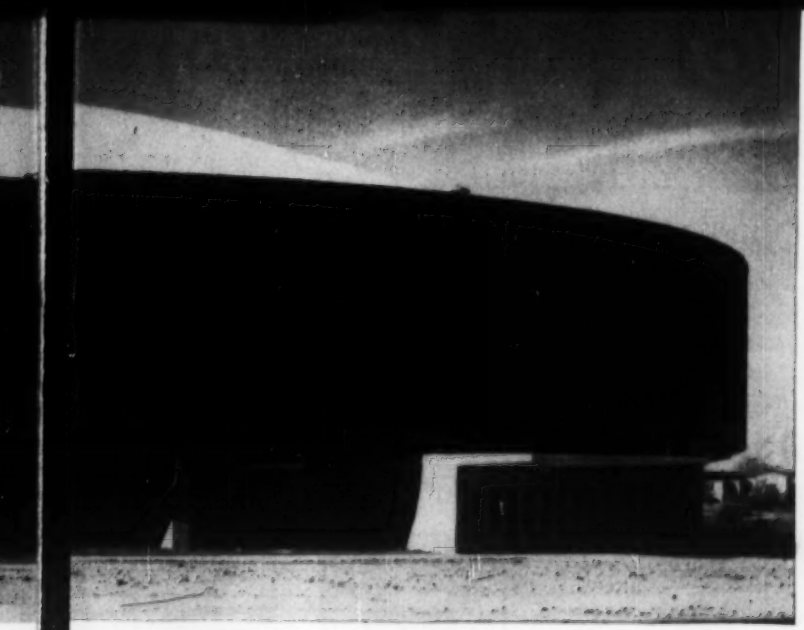


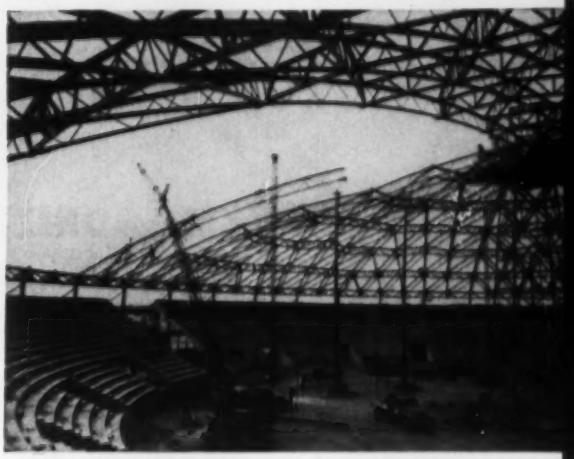
University of Wichita field house
features unique 267-foot diameter

THE ALL-WELDED, EXPOSED STRUCTURAL STEEL framework actually enhances the attractive interior of the building. The soffits of all trusses are painted a brilliant red which contrasts with the gray lead of the rest of the steel, emphasizing the diamond pattern.





UNIVERSITY OF WICHITA FIELD HOUSE. Architects: Lorentz, Schmidt, McVay, and Peddie, Wichita, Kansas. **Steel Fabricator:** Watkins Inc., Wichita. **General Contractor:** Dondlinger and Sons Construction Company, Wichita. **Designer and Engineer of Lamella Roof Structure:** Roof Structure Inc., Webster Grove, Missouri.



THE ROOF STRUCTURE is supported by 36 10WF39 columns. A trussed ring girder, 39 inches deep, rests on top of the columns and runs the entire perimeter of the building. Into this ring girder are framed 12 radial trusses which span to the compression ring at the apex of the roof. Also springing from the ring girder at intermediate points are curved roof trusses which intersect the radial trusses, resulting in the characteristic diamond-shaped lamella pattern.

lamella dome of Structural Steel

432 tons of steel erected in only 14 days

The unique lamella dome of Structural Steel which crowns the University of Wichita's new field house is the *first* such dome ever to be constructed. It was designed, developed and put to use for two practical reasons—economy and speed of erection.

Spanning 65,000 square feet, the 432 tons of Structural Steel were erected by two crews in the spectacular time of just 14 days! Starting on opposite sides of the building, the two crews worked around in one direction until closure was effected. The only falsework required was a central tower supporting the compression ring, or "lantern," at the apex of the dome. All connections were bolted during erection, then field-welded.

Built at a total cost of $1,405,700, the ultra-efficient structure includes such features as a complete heating and ventilating system (with radiant heating in the locker rooms), and color-corrected vapor lighting for the arena. And, with peripheral seating, not one of the 10,235 seats is more than 86 feet from the playing surface.

Where economy, speed of erection, and dramatic design are the keywords of construction, that's where you'll find versatile Structural Steel. Moneywise, Structural Steel is the most economical of load-carrying materials. And, it's the strongest. It will withstand more abuse than other structural materials, effectively resisting tension, torsion, compression and shear. Once enclosed in buildings, it lasts indefinitely, requiring no maintenance.

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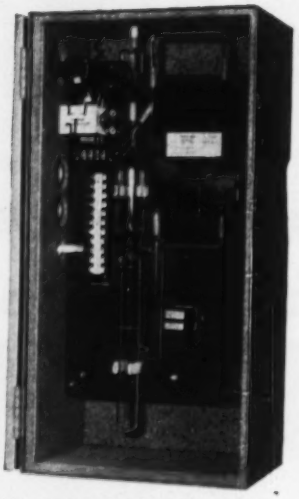
K&M Ebonized Asbestos, used for mounting panels, has exceptionally high dielectric strength. It is made of inorganic materials, pressure-molded and impregnated with a special insulating compound. It has high mechanical strength that makes components stay put and provides great resistance to vibration, shock, and temperature changes. Its uniform density and relatively light weight make it easy to handle and machine.

K&M Ebonized Asbestos is ideal where strong, shatterproof insulating material is required . . . on switchboards, bus bar supports, cabinets, compartment linings, bench boards and testing tables.



This Leeds & Northrup Gas Analysis Equipment is mounted on K&M Ebonized Asbestos to help ensure precise electrical measurement and longer life.

Write for information on K&M Ebonized Asbestos and other outstanding K&M insulating materials including Monobestos, K&M asbestos cloth, tapes, and tubing for electrical equipment.

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Truck Versatility

Carrier and other optionals available with Hydra-Lift

Pitman Manufacturing Company has announced availability of three new optionals which greatly increase the usefulness of Hydra-Lift truck mounted crane. One of these is a new type of boom that makes it possible to haul much higher capacity loads on any truck the Hydra-Lift is mounted on. The Hydra-Lift also is available now with a hydraulically-driven loadline winch, plus a basket which can be attached to the boom tip for lifting a man into the air.

The new cab-beside-engine carrier has a wheel base of only 144 in., permitting operation in extremely close quarters, yet there is also 144 in. of free space between the crane and the end of the frame.

The Hydra-Lift, which also can be installed on conventional trucks of two tons and larger, requires only 44 in. behind the cab. PITMAN MFG. CO., 300 W. 29TH TERRACE, KANSAS CITY, MO.

New Masonry Veneer Blocks Have Built-in Mortar Joint

A new masonry veneer called Redibrik is being licensed throughout the country. For use in both new construction and remodeling, the product is a 16 x 2⅔ x ½-in. cast block. During casting it is compacted to high density, impregnated with a coloring agent to make blocks more impermeable to water.

Each unit has a self-contained mortar joint—an integral flange on one end and one side. Installation of the blocks consists of setting them in mortar and tuckpointing the joints with an electric caulking gun supplied with the block making machine. REDIBRIK IND., INC., 341 OTTAWA AVE., HOLLAND, MICH.

Crawler-Mounted Drill Is a Time-Saver

A new rock drilling crawler designed to reduce drilling time as much as 30% has been announced by Thor Power Tool Company.

The new rig, the MM-2 "Drillcast," is entirely self-propelled with drill, mast and air power mounted for one-man operation.

The air-operated crawlers enable the rig to move over the roughest terrain and eliminate labor crews to move the drills into position. It also brings portable power to road cuts.

The new machine consists of Thor's 105M Drifter Rock Drill and the BW-2 Wagon Drill Mast mounted on the crawlers and is equipped with twin, reversible 7½-hp air motors. For added maneuverability and ease of operation, the rig also has a hydraulic boom to raise or lower the drilling mast with little effort on the part of the operator.

The "Drillcat" performs the same vertical, horizontal and angle rock drilling operations as the Thor Wagon Drill. The crawler's extra heavy weight of 3,000 pounds lends added stability under all operating conditions. Its motors have sufficient extra power to tug compressors into drilling position also. THOR POWER TOOL CO., AURORA, ILL.

Heavier Hammer Is a Feature of Hydraulic Paving Breaker

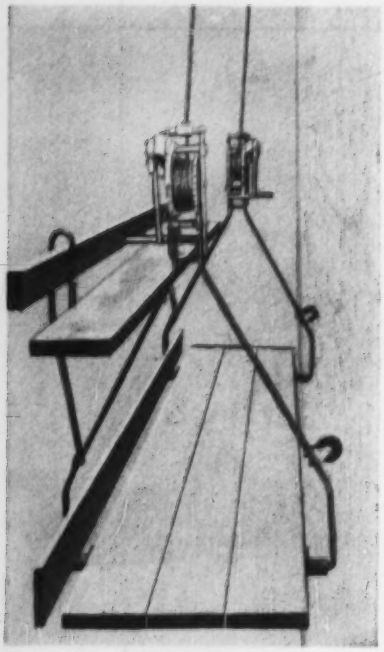
A larger engine and heavier hammer on a new model SPHH-1000 Hydra-Hammer is said to result in greater production on all pavement breaking, cutting, and backfill tamping jobs.

The 7,500 ft lb blow developed by the hammer is controlled so that the maximum blow, or a minimum blow as little as 100 ft lb, can be used at the operator's will. This makes it possible to compact heavy clay soils in 4 to 6 foot lifts, and light sandy soils over terra cotta pipe in as little as 18 in. lifts. OTTAWA STEEL DIVISION, L. A. YOUNG SPRING & WIRE CORP., OTTAWA, KANSAS.

Self-Propelled One-Man Drill Can Cut 11-Ft-Deep Holes Fast

A self-propelled, rotary unit, designed for construction projects where continuous blasting and drilling is needed is now on the market under the name of Damco Blastholer.

Holes of 2¼ to 3⅞ in. can be drilled to considerable depths by the machine, which is self-contained and requires only one operator. The manufacturer claims that 11-ft holes have been cut in 20 seconds and the rig moved to the next location ready for a new cut in 1½ minutes. The compressor is built as an integral part of the rig, and is also used for blowing out the hole. DRILLING ACCESSORY AND MANUFACTURING CO., DALLAS, TEXAS.



Swing Stage Features Three Automatic Safety Devices

Three anti-fall devices protect off-the-ground workmen supported by Safeway's Budget-Swing, a light-duty swing stage just introduced. The two cable-suspended stirrups that comprise the swing stage are each equipped with (1) a spring-loaded pawl that engages the rim of the cable winch and prevents it from turning accidentally, (2) a safety stop that must be lifted manually before the crank handle can be turned, and (3) a mechanical brake built into the gear mechanism.

The stirrups are constructed to accommodate three 10-in. floor boards, an 8-in. toe board each side, a 2x4 guard rail, and a waist-high 8-in. materials platform. The latter feature is claimed by the manufacturer to be a Safeway exclusive.

The bracket for the materials platform and the guard rail can be bolted on either side of the stirrup. Also attachable on either side, a 3-in. hard-rubber roller on each stirrup protects the wall.

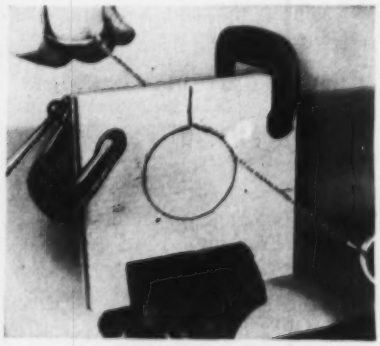
Each winch comes equipped with 75 ft. of ¼-in. 6x19 galvanized plow-steel wire rope. Working load (at a safety factor of 4) is 700 lb for the stage (350 lb. per stirrup). Each winch-and-stirrup assembly weighs 61 lb.

The crank-to-winch gear ratio is 7 to 1. The gears can be disassembled for inspection by removing a cotter pin and nut. SAFEWAY STEEL PRODUCTS, INC., 6234 W. STATE ST., MILWAUKEE 13, WIS.

Truck-Mounted Crane Lifts Up to 7,000 Lb

A truck-mountable crane, known as Versa-Lift Model 400, has been designed for mounting on 1½-ton and heavier truck chassis. The crane, with capacities up to 7,000 lb (depending on the boom), is said to convert any truck to a self-loader and perform many other jobs on the construction work.

Completely hydraulic, the Versa-Lift is operated by one man (usually the truck driver), can lower a load 16 ft below ground with its standard cable, has a minimum load clearance of 6 ft with the boom horizontal. Major feature, according to the manufacturer, is that the rig occupies only 22 in. of space when mounted directly between truck cab and bed. TEALE & CO., OMAHA, NEB.



Pocket Saw Weighs Less Than Pack of Cigarettes

An 18-in. saw that rolls up and fits in your pocket is now imported to this country from France. Developed for the French armed forces, it consists of a thin flexible steel blade, studded with spiral rows of teeth and fitted with a handle ring at each end.

The saw can be used either with a ring gripped in each hand or with the blade strung between the ends of a bowed length of wood. One model can be used for scroll work. It has a detachable ring that frees one end of the blade for insertion through a drilled hole. The manufacturer says the tool will cut such materials as Formica and nonferrous metals as well as wood.

Coiled, the saw fits into a waterproof plastic envelope that comes with it. The unit is said to weigh less than a pack of cigarettes. Three models are made, the Sportsman ($0.98), the Woodsman ($1.49) and the Commando ($1.98). They are sold in lots of a dozen. VARCO, 91 BROADWAY, JERSEY CITY, N. J.

New Kickless Air Hammer Boasts One-Hand Control

The 4½-lb Ramex air hammer features instant one-hand control over the full range of impact, according to the manufacturer.

Delivering any blow from a light tap to a powerful smash, the hammer can be used with more than 40 accessory tools for such jobs as drilling, chipping, riveting, caulking, cutting and gouging.

Maximum air consumption is 6.8 cfm.

Kick is eliminated by air cushioning, the maker says.

As a safety feature, the tool is designed so that it won't run, even after the trigger is pulled, until the hamer touches the work. And it shuts off when removed from contact.

Angled air exhaust keeps the work surface clean.

The new air hammer is chrome plated to prevent rust and corrosion. E. V. NIELSEN, INC., 129 BROAD ST., STAMFORD, CONN.

Flashing Road Barricade Is Self-Contained Unit

An all-metal, self-contained, flashing-light road barricade is now on the market.

Called the "Owl-lite" by its manufacturers, the unit comes with either red or amber lights, and is said to operate for six months without a change of battery.

Its lights flash approximately 100 times a minute and reportedly are visible for more than a mile.

Scotchlite markings on the sides of the cross bar provide additional protection.

Regulation diagonal markings are made in black and yellow or black and white, but other color combinations can be obtained on order. PARTRONICS, INC., DEPT. S, 2421 ELMWOOD AVENUE, BUFFALO, N. Y.

Outdoor Air Conditioner Has Built-In Condenser

A line of packaged, outdoor-type air-conditioning units for stores, theaters and other commercial buildings is now made by Alton Mfg. Co. Manufactured in 10, 15, 20, 25 and 30-ton sizes, the conditioners have built-in evaporative condensers and, therefore, do not require separate cooling towers.

All components are enclosed in a single skid-mounted unit. The package is weatherproofed by insulated galvanized panels, painted for added protection.

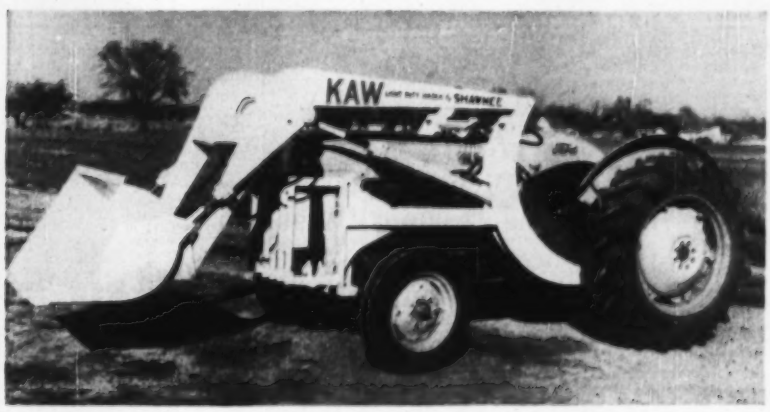
Panel openings are protected by stainless-steel eaves. Controls are housed in a plastic control box, weatherproof and tamperproof. ALTON MFG. CO., 1112 ROSS AVE., DALLAS, TEX.

Concrete Vibrator Model Features Motor in Head

Designed to meet the need for faster, more efficient vibration of concrete, a new motor-in-head vibrator has been introduced by Thor Power Tool Co. The development was hailed by company officials as the second for its Construction Equipment Division (the first was a power trowel).

According to the manufacturer, the new machine has 25% more power than conventional vibrators to make for better penetration, compaction of stiffer mixes. With the motor in the head, the need for cumbersome, hard-to-maintain flexible shaft is eliminated.

The vibrator is available in three models: CV2-10, with 10 ft of hose; CV2-20, with 20 ft of hose; CV2-210, with a 10-ft length of hose on each end of the switch. All models include a 25-ft, 3A conductor electric cable. THOR POWER TOOL CO., AURORA, ILL.



Utility Loader Has 8-Second Cycle

A newly designed utility loader, the "Kaw" loader, has recently been marketed by the Shawnee Manufacturing Company of Topeka, Kansas. The new "Kaw" loader has a 10-cubic foot roll-back bucket actuated by twin, 2 in. double-acting cylinders. Lifting cylinders are 2½ in. bore and hoist 1,250 pounds to nine feet dumping height. The hydraulic system comprises an eleven gallon crankshaft driven pump and permanent piping with 1,000 psi by-pass protection. Controls are finger-tip type.

According to Shawnee the operating cycle for the loader is 5 seconds to full dumping height, 3 seconds to down position. Due to its low cost and simple, two-pin installation, the Kaw Loader is said to be ideal for use in application where a single tractor is used frequently with other attachments. SHAWNEE MANUFACTURING COMPANY, 1947 NORTH TOPEKA, TOPEKA, KANSAS.

Fiber Board Target Designed For Low-Cost "Camera" Level

A target made of fiber board that is positioned by a simple clamp has been designed for the Cowley Compactic automatic level.

Instructions are painted on the back of the target for operating the camera-sized level, which does not employ cross-hairs, bubbles, screws or focusing. ENGIS EQUIPMENT COMPANY, 431 S. DEARBORN ST., CHICAGO 5.

Side Grab Fork Lift Works Without Pallets

An hydraulically activated "load grab" clamp featuring a "side shift" carriage is now available for the Hyster 20. The side grip feature of the new unit eliminates the need for pallets and therefore speeds and simplifies the storage of many hard-to-handle-items. The side shift carriage permits accurate spotting of a load with a minimum of truck maneuvering. HYSTER CO., 2901 N.E. CLACKAMAS ST., PORTLAND 8, ORE.

Concrete Conveyor Is Portable, Lightweight

The Model 618B Portable 40′ concrete conveyor features a concrete swiveling chute, a belt wiper, a concrete hopper, and can be obtained with head end control for starting and stopping the belt. The belt is 18″ wide and runs on triple troughing type idlers. A self-cleaning foot pulley is located at the foot end.

Capacity varies with the slump of concrete used and discharge heights. Twenty-four yards of concrete per hour can be poured at a discharge height of 16 ft. The manufacturer claims the unit can be raised to 26 ft. THE FAIRFIELD ENGINEERING CO., MARION, OHIO.

Flexible Drive Absorbs Shocks From Mixer Drum

Production of a new series of "truck engine drive" transcrete truck mixers has been announced by Construction Machinery Co.

The new units feature a floating drive said to protect the drum drive by automatically compensating for the reaction of the loaded drum and for the flexing or abnormal movement of the truck frame. Power for drum rotation is taken from the front of the engine, where speed is subject only to throttle variation, by means of five steel core V belts working through multiple V sheaves. CONSTRUCTION MACHINERY, WATERLOO, IOWA.

Now-GMC's new tandem

—with more power—more "muscles"—more earning capacity—for every construction use

Now the wraps are off these great new GMC super-trucks—destined to hike the profits of haulers in every kind of construction work.

There's new, cost-shrinking power right down the line. A 220-h.p. Six delivering tremendous torque. Two new short-stroke V8's at 206 h.p. and 232 h.p.

There's a sensational new Turbo-power Diesel. Its 2-cycle design gains most from turbo-charging—taking as much as 11 horsepower right out of the air—from otherwise wasted exhaust flow!

And that's not all. New axle and spring options* equip these haulers to handle bigger jobs.

There are bigger, surer brakes, too. In fact, these GMC's are engineered—from rims to roof—to snap through bigger, tougher jobs—with less time out for repairs. So there are far lower maintenance costs—far lower operating expense in every department.

And many models now offer a front engine PTO drive option*—eliminating all need for an auxiliary engine for transit-mix work.

Add it all up and it's easy to see why these great new GMC tandems are called Money-Makers. They blanket the 28,000 GVW-90,000 GCW range. And your GMC dealer has the story on every one of them!

**Optional at extra cost*

GMC TRUCK & COACH—*A General Motors Division*

New turbo-charged six-cylinder 2-cycle Diesel that delivers more power on less fuel.

New high economy V8's with 206 and 232 h.p. A new 220-h.p. Six delivering tremendous torque.

Money-Makers for '57

New Hydraulic fans on Diesel models that operate only when needed – and save up to 10 h.p. and 5% on fuel.

New full-length frame reinforcements – for liquid loads and other severe service – are a new option that gives these GMC's tremendous stamina.

New axle and spring options that permit bigger payload values.

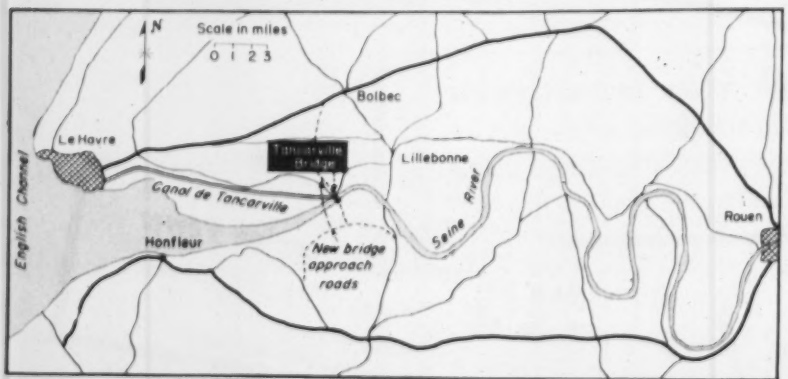
New optional front engine Power Take-off to handle transit mixers without auxiliary power.

SEINE RIVER SCENE 1959, in which Europe's longest suspension bridge, now under construction, is depicted by French artist Paul Lemagny in its Normandy setting. The crossing will be a 2,000 ft . . .

Suspension Bridge on Concrete Towers

Europe's longest span suspension bridge—and tied for eighth place among the longest suspension spans in the world—is under construction across the Seine River at Tancarville, France, 15 miles upstream from Le Havre.

It will have a main span of 2,000 ft, and suspended side spans of 578 ft. About 53-ft wide center to center of its 22-in. diacables, it will accommodate a 41-ft roadway and two 4-ft sidewalks. And compared to normal practice, its most unusual characteristics will be its use of reinforced concrete instead of structural steel for the towers. Other French and European suspension bridges have utilized concrete towers, but none even closely approach the span length of the Tancarville bridge.



TANCARVILLE BRIDGE will be first one across the Seine in the 75 mile stretch between Rouen and Le Havre.

The desirability of a bridge (or a tunnel) somewhere near this location has been recognized, and various projects have been studied, for more than half a century. Except for antiquated ferries, there is no crossing of the Seine from its mouth at Le Havre to the big port city of Rouen, 75 miles upstream. Both commercial and tourist traffic were so badly hampered that the Chamber of Commerce of Le Havre finally took the initiative, obtained a concession for a bridge, secured the financial aid of the French Ministry of Public Works and turned the design and construction supervision over to the Services des Ponts et Chaussees. Ground was broken in November, 1955,

and, to date, foundations are about 30% complete.

Both tower foundations are on the river bank, leaving the river free to shipping. The right (north) bank foundation rests on two 39-ft square caissons sunk under compressed air to a depth of 62 ft. A single caisson, 39 x 112 ft in plan, also sunk under air, goes to a depth of 92 ft for the left bank tower foundation.

The anchorage on the right bank takes advantage of a steep limestone cliff in which heavy structural members can be buried. These will be joined to the cables by two anchorage "bars" consisting of prestressed concrete members 165 ft long and with a section of 128 sq ft. On the left bank, where flat topography prevails, the anchorage will be largely above ground. It will consist of two parallel walls, 148 ft high and 148 ft long, joined by cross members to form a box at the rear that will receive a ballast load of 3,730 tons. Each wall will rest on and be hinged to caissons at the front and rear, each caisson being 25 x 72 ft in plan and sunk to a depth of 75 ft.

The towers of the Tancarville bridge comprise its most interesting element. Of reinforced concrete, they will rise to a height of 408 ft above the ground. Each tower is composed of two legs, joined at the top by a beam 49 ft deep and 31 in. thick, and below the roadway by a 31-in. thick wall, which extends down to the ground. Each leg is 15 ft wide, while its other dimension varies from 21 ft at the bottom to 10 ft at the top.

The cables, which these towers support, are each made up of 56 strands approximately 3 in. in dia, which gives a hexagonal cable with a dia of about 22 in. Each cable strand contains 169 wires of 0.19 in. dia. Each cable is designed for a load of 8,500 tons, and has a sag at the center of 210 ft.

Suspender ropes, 3½ in. dia, spaced 35 ft along the cables, carry the stiffening trusses and the deck structure. The stiffening trusses, 19.7 ft deep, are joined between their top chords at 35 ft intervals by cross girders 5 ft 4 in. deep into which frame seven lines of stringers. On these will be placed a ⅜-in. steel plate deck carrying a 4-in. reinforced concrete slab surfaced with 1½ in. of asphalt.

Further rigidity is afforded the suspended structure by a cross member between the bottom chords of the stiffening trusses, which is supported at the center by a V-brace attached to the floor girders. This suspended structure has a 158 ft clearance above the river at the center of the main span.

In total, the Tancarville bridge will require 80,000 cu yd of concrete, 3,400 tons of reinforcing steel, 6,775 tons of structural steel, 3,210 tons of wire, 800 tons of cast steel and 420 tons of prestressing cable. This latter figure is swelled by the fact that the eight spans of the approach structure on the left bank are in prestressed concrete. Each 165 ft span contains five I-section girders 10 ft deep.

Scotland Receives Bids For Atomic Power Plant

Construction of a 250,000-kw atomic power station, estimated to cost between $84 and $110 million, is to start early this year at Hunterston, in Ayrshire, Scotland. The South of Scotland Electricity Board already has received bids from four contractors and expects to announce the successful bidder this month.

The station is designed for two nuclear reactors. The first is to be in operation by 1961, the other in 1962.

Design of the plant will be based on the prototype at Calder Hall in England (ENR, Oct. 25, p. 48). Initial construction cost will vary between $335 and $440 per kw, to which must be added about $95 per kw for fuel—natural uranium. Britain's Atomic Energy Authority will supply the uranium and use the plutonium byproduct.

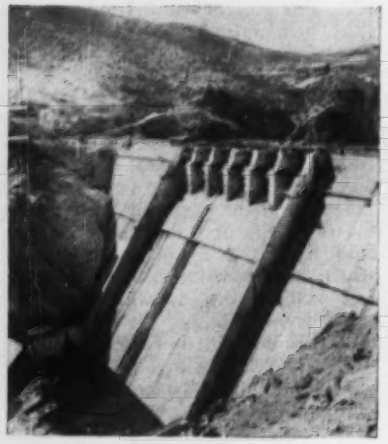
(*International continued on page 60*)

They Build in Far Away Places

Because they have held contracts for U. S. military construction abroad, two contractors from different sides of the world met recently in New York on a harbor inspection tour arranged for them by Col. Clarence Renshaw (left), North Atlantic Division Engineer of the Corps of Engineers.

Yu Kim Teng (center), head of a large construction firm in Manila, built some of the major installations on Okinawa when Colonel Renshaw was district engineer there.

Einar Thorsen (right), from Copenhagen, is president of Danish Arctic Contractors, now doing work for the Corps of Engineers North Atlantic Division in Greenland. On the New York harbor trip Thorsen saw two piers on Staten Island on which he had worked as a young engineer 35 years ago when he lived in this country.



Concrete dam and powerhouse for country's largest hydro project . . .

Turkey's Sariyar Project Picks Up First Load

Turkey's largest hydroelectric project, the Sariyar on the Sakarya River, recently picked up its first load—the capital city of Ankara.

The nearly completed project—to eventually produce 180,000 kw—is the first integrated closed-loop power system for Turkey and will tie the western half of the country into one grid. It soon will be synchronized with steam power plants at Catalagzi on the Black Sea and Tuncbilek near the Mediterranean to give a big boost to the total power supply for Turkey (ENR, Dec. 25, 1952, p. 50).

The $90-million Sariyar project has been in the making since early 1952. It includes a 354-ft-high gravity-type concrete dam storing 1,6-million acre-ft of water for both power and flood control. A 26-ft-dia, 3,280-ft-long concrete-lined tunnel delivers the water to vertical turbines in the powerhouse, a 270x98-ft concrete structure. And overlooking the switchyard is a surge tank—believed to be one of the world's largest single units—with an 11-million-gallon capacity.

Two installed generating units, operating under a 250-ft head, now develop a peak load of 90,000 kw. Two future units, for which facilities are provided, will double that figure.

The powerhouse and dam sites are on opposite sides of a horseshoe bend in the river. During construction a 623-ft-long cofferdam containing rockfill and alluvial material, along with a 28-ft-dia tunnel through the horseshoe, diverted the river.

Sariyar was jointly financed by Turkey's Etibank and the International Cooperation Administration. Engineering design and construction management was by Charles T. Main, Inc., of Boston. Prime contractor was a consortium of three German firms—Holtzman, Hochtief & Siemens—and RAR of Turkey. Thompson-Starrett of New York City furnished technical planning.

One Large, One Small

British Columbia outlines plans for hydro projects

Two hydro projects in British Columbia—one a small one about to start, the other a large one in the dream stage—made news last month.

The British Columbia Power Commission announced a spring start on an overall $20-million, 65,000-kw power development in the Alberni Valley on Vancouver Island. Construction is to commence on the first stage of the project—a $10-million scheme on the Ash River comprising a small dam, a 5-mile tunnel to Great Central Lake and a 26,000-kw powerhouse with 27 miles of transmission to the city of Port Alberni. This is scheduled for completion in late 1958.

Second phase construction will involve a dam at the outlet of Great Central Lake, 2 miles of tunnel and a 26,000-kw power plant on Sproat Lake. Finally, a dam and 13,000-kw power plant are to be built on the Sproat River. The entire system drains into the Alberni Canal, then to the Pacific Ocean on the western side of Vancouver Island.

• **And the big one**—In the opposite corner of the province, the British Columbians believe they have spotted a hydro scheme that is potentially another Kitimat, although a half-size one. A preliminary survey by government engineers indicates a 1.5-million kw hydro possibility on the Peace River system, about 500 miles north of the international border and 250 miles due east of the tip of Alaska.

In this remote northeast corner of British Columbia, the Finlay and Parsnip Rivers join to form the Peace, which flows easterly then northerly through Alberta and into the Mackenzie River in the Northwest Territory. The Mackenzie, a major navigation stream, flows generally northwest and empties into the Arctic Ocean near the eastern shore of Alaska.

Two development schemes for the Peace system are possible, according to the Canadians. The simplest would involve damming the main canyon of the Peace, which drops 225 ft in 18 miles. The other would involve a dam at the confluence of the Finlay and Parsnip River and diverting the waters into the Fraser River at a point some 300 miles north of the contemplated Columbia River diversion into the Fraser through the Thompson River.

The B.C. government emphasizes that a major study still must be undertaken to prove out either scheme.

Russia Says It Will Build Solar Electric Power Plant

Russia is said to be planning to build a solar electric power station in the Ararat plain in Armenia. It is claimed that the station will be used to produce experimental quantities of electric power for use in draining nearby land for agricultural purposes and for heating buildings in the neighborhood.

It reportedly will have more than 1,000 mobile mirrors for collecting the light and heat from the sun and will operate a 1,200-kw generating set running on low-pressure steam.

The movement of the mirrors is to be controlled automatically by photocells, which will maintain the collecting mirrors in those positions where the most light is falling.

each day...

142 billion gallons of water

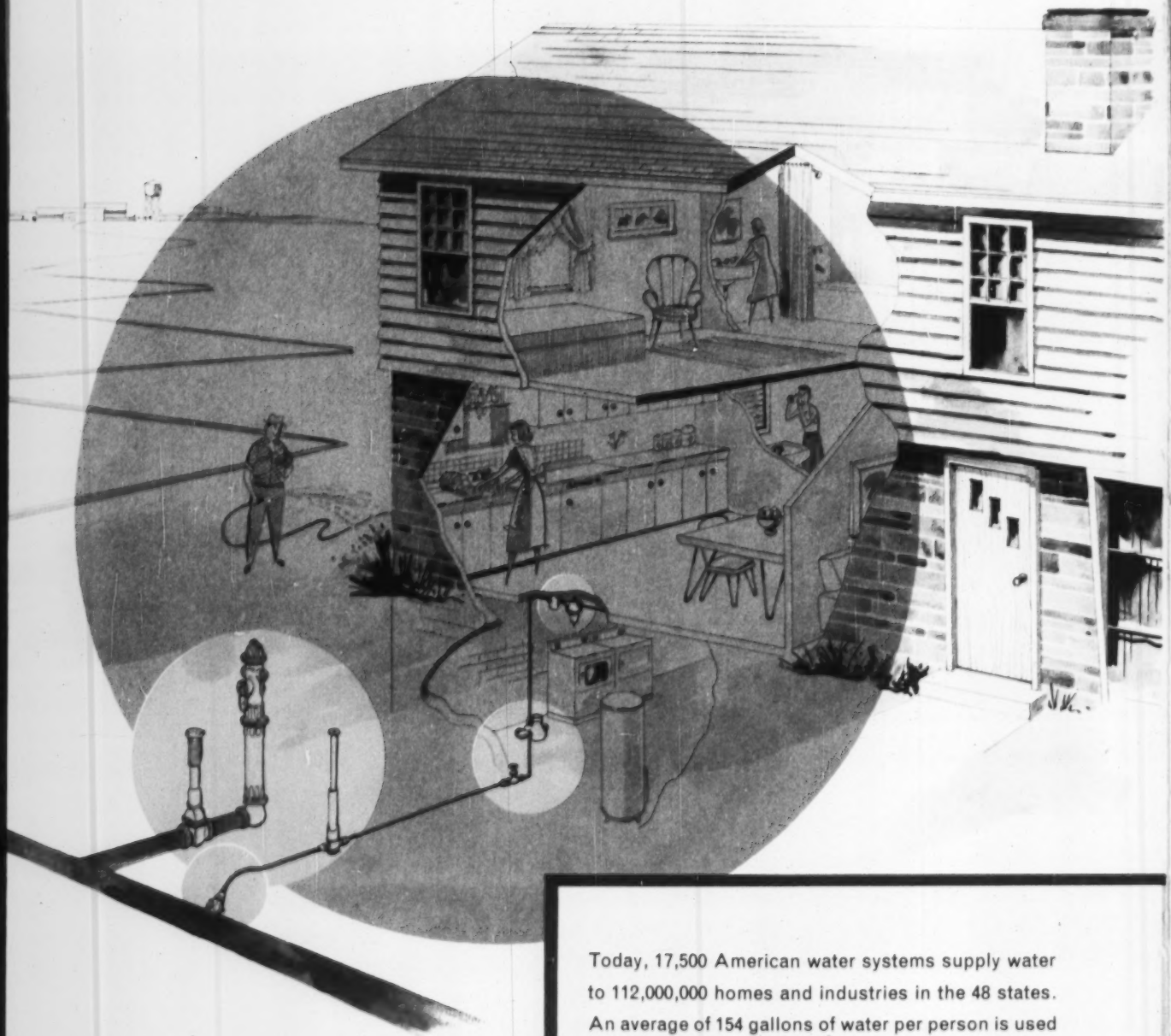
A hundred years ago, peddlers sold water for a penny a bucket from wagons in the streets. Today, modern, efficient water systems filter, purify and supply 142 billion gallons of water each day to consumers throughout the nation.

America's outstanding water industry has helped make this country a healthier, cleaner, better nation in which to live and work. For the outstanding progress in service and for an unfailing supply of pure, fresh water, Mueller Co. pays tribute to the vital water industry.

MUELLER CO. 100th YEAR SERVING the Water and Gas Industries QUALITY

from buckets to billions

Serving 112,000,000



Today, 17,500 American water systems supply water to 112,000,000 homes and industries in the 48 states. An average of 154 gallons of water per person is used each day for a thousand and one purposes in the average American home.

MUELLER CO.
100 YEARS
QUALITY

American Homes and Industries

Today's immense water industry is a far cry from the old oaken bucket of a hundred years ago. But a look backward reveals the remarkable growth and development in the field of water treatment and distribution.

The first public water system was in Boston in 1642; and, 150 years later, only 17 systems were in operation in America. In 1829, water for consumption was first treated, at Lynchburg, Virginia, by settling basins that removed silt from raw water. Fifty years elapsed before the first practical method of water treatment by coagulation, sedimentation and filtration was developed to improve the public water supply of Vicksburg, Mississippi.

Thus, the last 75 years have seen the development of the modern water industry and present-day methods of treatment and distribution.

It was previous to this period that Hieronymous Mueller founded Mueller Co. in 1857 at Decatur, Illinois. He was appointed city plumber of Decatur in 1871, charged with plumbing and adding new services to that city's mains. This led to his invention of the original Mueller tapping machine in 1872, improved models of which are now in use throughout the water industry.

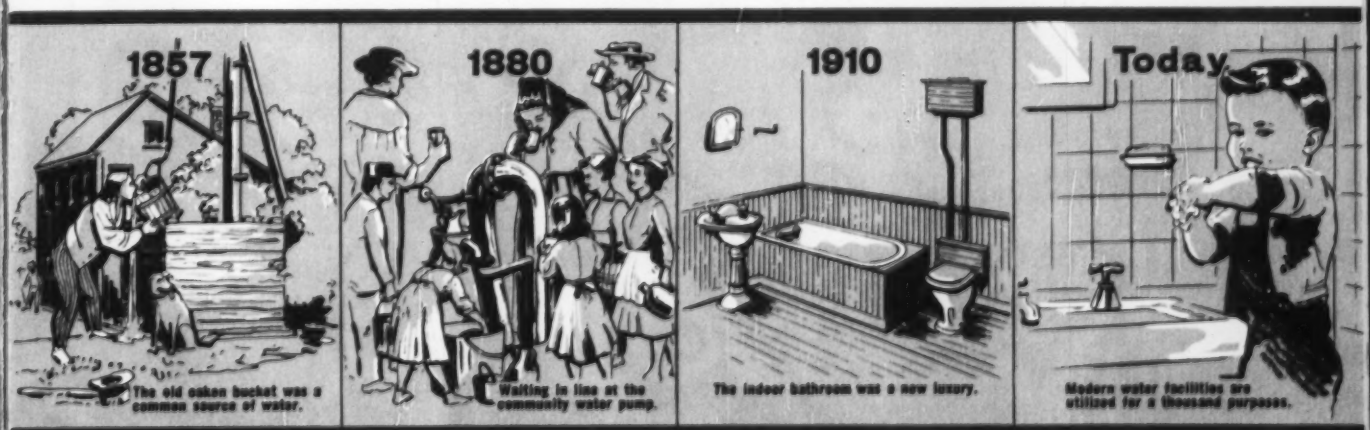
Another milestone for water was the use of 42" metal pipe for service at Newark, New Jersey, in 1892. Wooden mains, the mainstay of early water works, were gradually replaced with long-lasting cast-iron pipe. Copper pipe, introduced to the industry in 1924, is now widely used to combat corrosion in water systems.

A major step, that guided the development and growth of the industry, was the formation of the American Water Works Association in 1881. Professional water works men bonded together in an association where they could share experiences and work out common problems for the benefit of all. For 75 years, this organization, which now numbers 10,000 water works men, has led the growth and progress of the industry. Mueller Co. was one of the first five associate members, joining the organization a week after its formation.

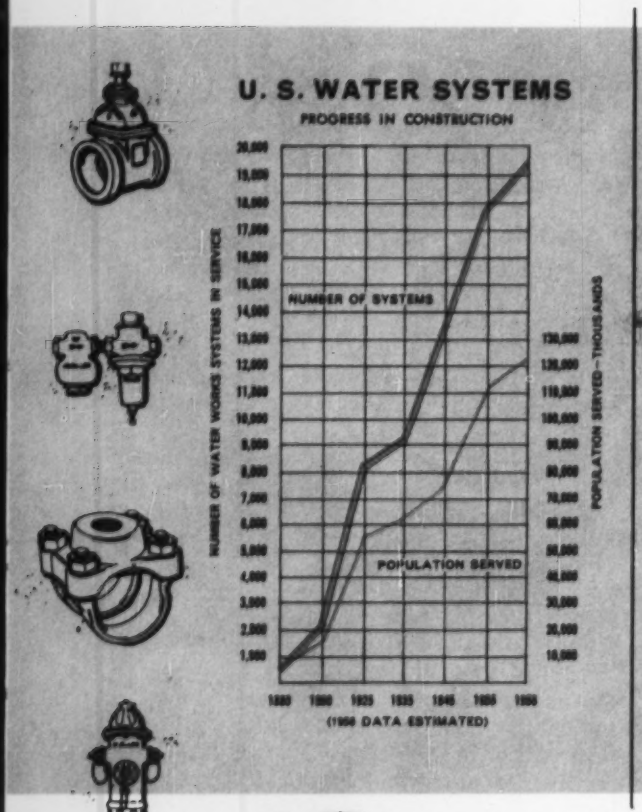
The 656 meager water systems, supplying service to 10,000,000 consumers in 1880, multiplied to the modern network of 17,500 systems supplying 112,000,000 homes and industries today.

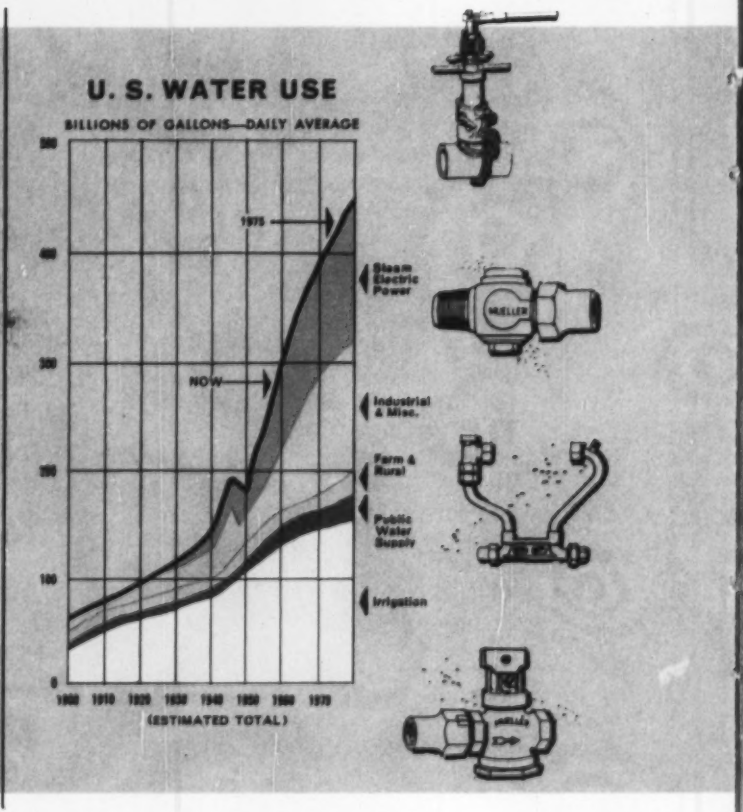
Electric power producers and industrial users are the largest consumers of water, each requiring 60 billion gallons daily. Individual consumers are least demanding, requiring only 17 billion gallons each day. Five and one-half billion gallons are consumed in rural areas. This tremendous volume portrays the great growth in the service of our water systems, which, just 70 years ago, provided only 40.9 billion gallons of water daily.

Water works construction has kept pace with the growing water need. During the past quarter century, 4,575 water systems greatly expanded their services and 16,000 new systems have been installed. Construction budgets generally have quadrupled, setting an all-time high in 1956 of about $272,908,000, a 50 per cent increase over 1955's budget. This huge construction program is brought about by a number of major cities modernizing and enlarging their water distribution systems and by the increasing need for extensions of water service to new suburban areas.


1857
The old oaken bucket was a common source of water.
1880
Waiting in line at the community water pump.
1910
The indoor bathroom was a new luxury.
Today
Modern water facilities are utilized for a thousand purposes.

What's ahead for Water?





Population and industrial growth indicate a probable 73 per cent increase in water usage during the next twenty years.

Daily usage is expected to reach a staggering 284 billion gallons by 1975, twice the present-day consumption! This increase is created by a population forecast of 206 million in 1975, and an anticipated 50 per cent jump in industrial usage.

Extensive expansion of the water industry is expected to continue, with new construction projects and increased budgets enabling the industry to provide a supply of water adequate for future needs.

New techniques may further aid in supplying water requirements. Replenishing ground water resources by artificial means could store water underground with negligible loss through evaporation. Artificial induction of precipitation may help. Research, in processing sea water, could provide a new source of fresh water.

Yet, careful planning and allocation of water resources will be required to supply future development of the Nation. Additional water, from deep well sources, will help increase the supply. Efficient water systems, with modern facilities, and utilizing proper service equipment, will deliver water with minimum loss.

The tremendous progress of the water industry is ample proof of its ability to meet the challenge of the future.

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Rail Piles

Steel distributor and contractor develop pile composed of three used rails; tests show unusual strength and rigidity. It's . . .

One Way to Beat a Shortage

With an eye on high prices and late deliveries of H-beam bearing piles, a foundation company and a national distributor of steel piles have cooperated in the development of a compact and sturdy pile fabricated from used railroad track.

Called the Foster Rail Pile, the section consists of three rails welded together so that the base of the rails forms a hollow equilateral triangle. The rail heads project outward at 120 deg to provide a generally symmetrical cross section with approximately the same section modulus around any axis.

The high yield tensile, and compressive strengths of rail steel make it well suited for piling material, and according to the fabricator, the design of the new section takes every possible advantage of the inherent properties of the material. Because of the triangular center and the heavy concentration of steel in the flanges (which are the rail heads) the section is extremely rigid throughout. This reduces the susceptibility of the section to the localized distortions at the point which are the major cause of vertical mis-alignment and subsequent loss of pile bearing value.

For these reasons, it is claimed that the rail pile can usually push aside obstructions or punch through hard strata without damage or deflection. Point reinforcement is not regarded as necessary but the characteristics of the material are such that additional tempering of the steel at either the top or bottom of a pile can be easily obtained, with an acetylene torch, either during fabrication or in the field.

Before an audience of more than 150 contractors, engineers, and city and state officials, the rail pile was recently given a driving test in the Kearny (N. J.) yard of the Western Foundation Corp., co-developers of the section. Three 80-ft-long piles, each of a different weight rail, were driven to refusal in bedrock with a single-acting steam hammer having rated capacity of 30,000 ft-lb per blow. All piles were driven to a final penetration of not less than 60 blows per inch. In spite of the hard driving, none of the piles showed any signs of distortion. Even the heads of the piles were unmarked by the hammer. The lightest section driven—a pile made up of 60-lb rail manufactured in 1882—was later pulled and found to be completely undamaged in any way.

For another test a very heavy H-pile was driven to absolute refusal in bedrock with a 60,000 ft-lb hammer and capped with a 5-in. anvil plate. Then rail piles made up to 60, 80, and 90-lb sections were stood on the plate and hit more than 200 times with a 17,500-ft-lb blow. None of the sections showed any visible effect of the beating.

Although the rail pile has never before been available to contractors, engineers of the Southern Pacific Railroad in the early 1930s, developed a triangular, three-rail pile. But then the heads of the rail, rather than the bases were welded together. The pile proved satisfactory, and was installed by the Southern Pacific (ENR Sept. 14, 1939, p. 94). However, general acceptance and use of the original rail pile was prevented by technical difficulties in welding, and by the low cost and availability of other types of steel piles.

Today, however, according to the Foster company, the situation is different. Improved welding techniques make it possible to fabricate rail piles with a series of 4-in.-long welds, spaced 16 in. on centers, except at the ends of a section where 1 ft of weld is used. It is expected that further experimentation in welding procedures will speed the already fast fabrication job. Furthermore, while competitive materials now are becoming increasingly more difficult to obtain, rails are in immediate supply and will continue to be so because heavier rolling stock is forcing railroads to replace more and more of its lighter gage track.

The rail piles for which a patent application has been filed will be fabricated by Foster in weights ranging from 60 to 133 lb per ft and in length from 28 to 39 ft or multiples. To make long piles or to use cut-off sections, rail-pile sections can be butt welded in the field.

L. B. Foster is now making rail piles only at its Delawanna (N. J.), plant, but in the near future expects to produce them at plants in Pittsburgh, Chicago, Houston, Los Angeles, and Atlanta.

Frothy Protection

Contractor uses plastic foam for mass concrete insulation

Another of the many new ideas on exhibit at Table Rock Dam on the White River in Missouri is use of a rigid plastic foam insulation to protect exposed bulkhead faces of monoliths during cold weather.

The Corps of Engineers required the contractor to cover the interior monolith faces with 3½ in. of lumber or its equivalent when more than a three-lift difference existed between adjacent monoliths. (Lifts are 7½ ft at Table Rock).

The contractor, a joint venture of Morrison-Knudsen Co. and Utah Construction Co., came up with a scheme employing the rigid plastic foam known as Styrofoam, produced by the Dow Chemical Co. One-inch thick planks of the plastic are nailed to panels of ¼-in. plywood sheet. The panels vary in size from 4 X 7½ ft. to 4 x 22½ ft., depending on the height of the face to be protected.

Panels are lapped and held in place by vertical walers blocked at the bottom with wedges driven against dowels drilled into the concrete of the adjacent monolith.

Waler tops are secured by anchor bolts previously set to support the concrete forms. Almost all material can be reused.

Engineer Becomes Governor

GEORGE DEWEY CLYDE was a practicing civil engineer who figured he could help Utah with its problems as governor. He ran and won.

George Dewey Clyde, a practicing civil engineer, was inaugurated as governor of Utah Jan. 7.

The new governor counts his win in a three-man race in part as a result of Utah's need for some sound engineering advice during the next decades of western development.

Pitted against him in the campaign was Gov. J. Bracken Lee, Utah's first Republican governor in 24 years and outspoken critic of federal spending in general, foreign aid and federal-state matching funds in particular. On the Democratic side was Salt Lake City Commissioner L. C. Romney.

While George Clyde was not unknown, he was certainly given little hope by the professional politicians.

"They said I started too late to get through the Republican convention and that I had no organization behind me to get through the primary"—in which he defeated incumbent Governor Lee.

Clyde jumped into the political scene because, as he says, he was convinced that Governor Lee's policies were wrong in regard to development of the state, "the pattern for which," he says, "will be set within the next few years."

Clyde had held the non-political job of director of the Utah Power & Water Board, a position he placed in jeopardy by entering the political scene as a candidate for governor. He had been a leader in the struggle for development of the Upper Colorado River Project, a plan which includes substantial benefits for Utah and without which there was a very dim industrial or agricultural future for the Upper Basin States of Wyoming, Utah, and Colorado.

He also opposed Governor Lee's position against federal aid as embarrassing to the state in view of the big highway construction program ahead.

During the bitter, final days of the race, in which Governor Lee ran as an independent, candidate Clyde refused to indulge in personalities and campaigned on the need for water supply, better highways, and expansion of industry in Utah.

• **Wants engineers for staff**—At inauguration time Governor Clyde faces the problem of finding competent men with whom to staff his state government. He hopes to make full use of business and engineering talent wherever he can find it, he says.

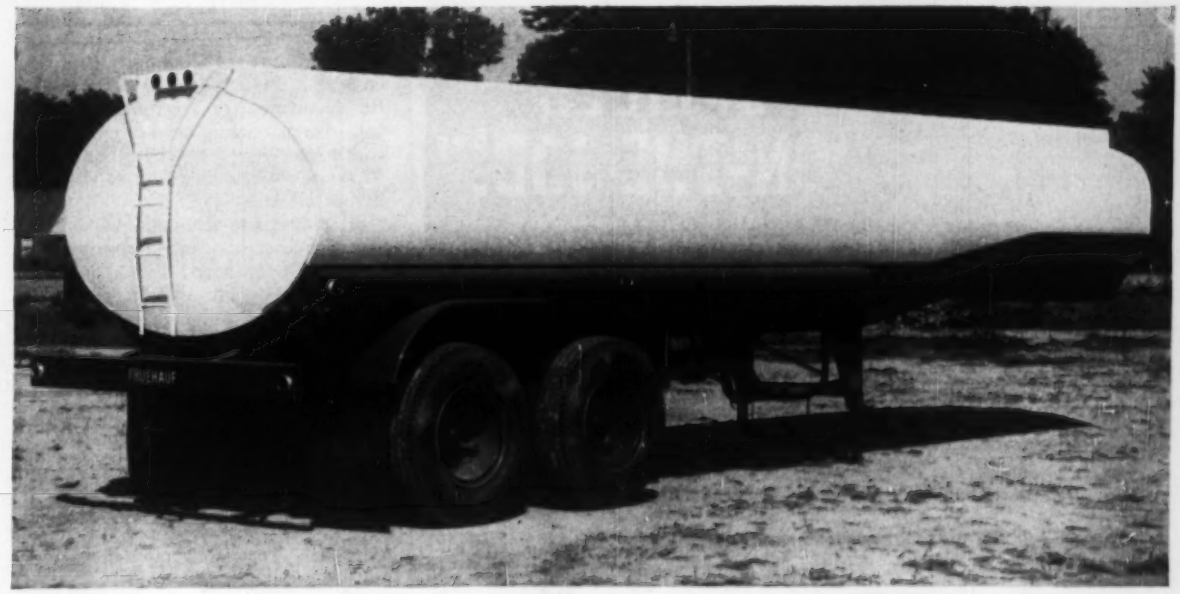
The engineer-governor is realistically aware of the problem of staffing his administration with qualified engineers—feels that pay scales will have to be revised upward in many of the top posts. "You just cannot obtain a qualified chief engineer for $10,000 a year," he says.

Governor Clyde comes from a family of engineers. Three of his brothers are engineers. His three sons are engineers. And his brothers' sons, seven of them in all, are engineers, for a total of no less than 13 in the Clyde family engaged in civil and electrical engineering work.

George Clyde graduated from Utah State Agricultural College in agricultural engineering, then went on to the University of Southern California, where he obtained his M. S. in civil engineering, with a major in irrigation.

He returned to Utah State as an assistant research professor in irrigation and water supply problems. And for more than two decades, which saw his promotion to associate research and later research professor at Utah Agricultural Experiment Station, Clyde dug into the problem of water for the desert state of Utah.

(*Continued on page 68*)

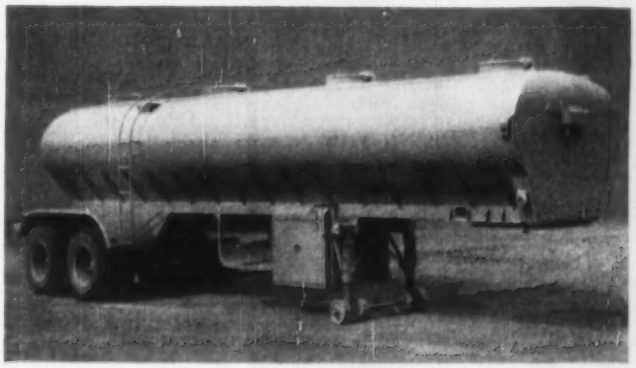


Yoloy "E" Makes Lighter Trailers

Yoloy "E" containing nickel, copper and chromium, a Member of the Yoloy Family of Steels, having a longer life, greater strength and good weldability makes Trailer tanks more durable and stronger. This new style tank is brought about by the use of lighter gauges plus the elimination of certain structures formerly required, plus reshaping and reforming the skin. The result is a tank that is serviceable, strong yet lighter.

Write for these free pamphlets in The Yoloy Family series:

Yoloy "E"	High Strength Low Alloy Steel-standard applications
Yoloy	High Strength Low Alloy Steel-special applications
Yoloy "S"	Higher Strength Steel for increased service life
Yoloy "C"	Corrosion Resistant Grade for deep forming
Yoloy Pipe	Continuous Weld for corrosion resistant applications



Independent Metal Products Div. of Fruehauf Trailer Co. produced (above) a new style 6250 gallon tank weighing approximately 1100 lbs. less than a 6000 gallon tank made of conventional steel and (right) a new style cement hauler saving as much as 300 lbs.

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Polyvinylchloride=PVC **WATERSTOPS**

ADVANTAGES

- Resistant to extreme waterhead pressures
- Tensile strength of not less than 1900 lbs. per square inch
- Superior holding strength . . . elongation ability of more than 350%
- Effective temperature range of —54°F. to +176°F.
- Chemically inert . . . resistant to acids, alkalis, weather, chlorinated water, oil, fungus, etc.
- Quickly, easily spliced "on-the-job" by merely applying heat and holding ends together . . . requires no welding or vulcanizing equipment
- Available in a type and size to meet the requirements of any particular climatic condition and head of water
- Supplied in lightweight, easy to handle 50 ft. coils . . . withstands abuse without damage

Have you compared "DURAJOINT" with your present waterstop materials? If so, you have already found out that *only* "DURAJOINT" offers *all* of the following important features:

BEST MATERIAL . . . "DURAJOINT" is extruded from a specially compounded polyvinylchloride (thermo-plastic) material that will outlast the useful life of the structure it's used in.

BEST DESIGN . . . "DURAJOINT'S" special longitudinal ridges insure the distribution of critical pressures and enhance the holding power. The hollow center bulb assists in providing for extreme elongation with full recovery.

STRONGER . . . "DURAJOINT'S" extreme elasticity and excellent tear resistance allow it to successfully handle movement of masses of concrete without being sheared.

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"DURAJOINT" enjoys national distribution through the outlets of Tecon Products Inc. in the 11 western states and W. R. Meadows, Inc. in the other 37 states of the mid-western, southern and eastern portions of the United States. Write today for complete information and name of your local distributor.

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Administrative responsibilities increased. From 1928 to 1936, he headed the department of irrigation at the college. He was acting dean of engineering and technology from 1935, and from 1936 to 1945 he was dean of that division at USAC.

In addition to academic work, Clyde served as engineer for various irrigation companies, the Soil Conservation Service, communities and the state of Utah.

• **Big job ahead**—Clyde sees his responsibilities in the development of the state's great water potential and mineral resources. "Make no mistake about it," he says, "for the Upper Basin states to maintain their rights to Colorado River water, we shall have to fight every year in Congress for the appropriations necessary to place these waters to beneficial use." He also is concerned about highways. During the next three years, some $45 million will be spent on superhighways in Utah. Another $30 million in federal-state funds will go to regular highway construction. Additional millions are planned for purely state road construction.

As an engineer with more than 30 years experience, Clyde confesses that he has sometimes been "disgusted" at the antics of politicians.

"I had often told myself and friends that I'd never run for office because the beating you take as an elected official is too much. But I feel there is so much at stake in this struggle to develop our state, that what appraisal I can give as an engineer might be worth the sacrifice."

Having gotten his "feet wet" in politics, George Dewey Clyde feels that despite the problems ahead, other engineers ought to get out of their shells and "go and do likewise."

Lofft Replaces Leonard As TVA Division Head

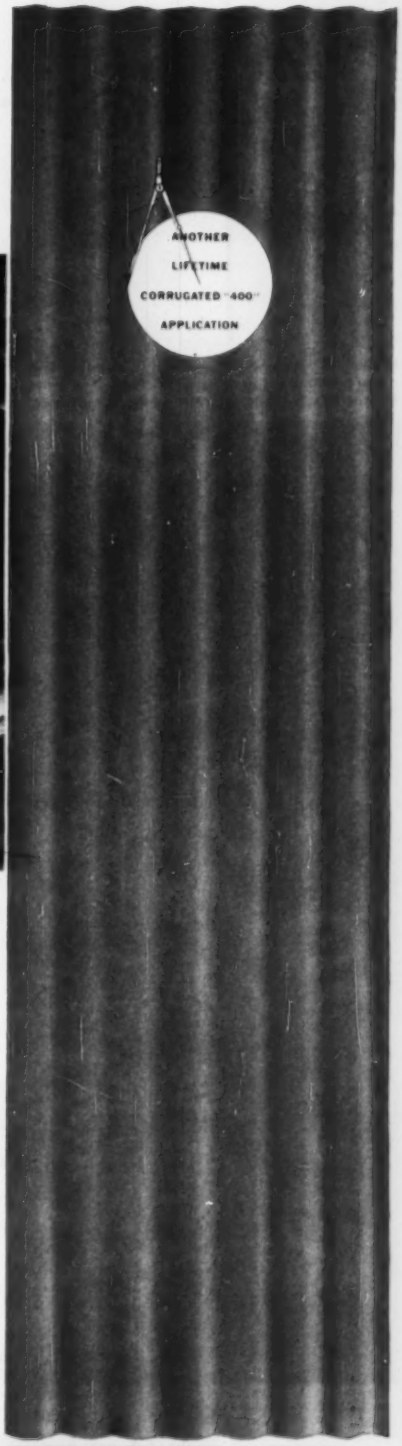
Henry T. Lofft, project manager during construction of the world's largest steam plant, Kingston, has been named Tennessee Valley Authority chief construction engineer. Lofft succeeds George K. Leonard, who became TVA chief engineer on Jan. 1 when Clarence E. Blee retired (ENR Dec. 27, p. 52).

As head of the construction division, Lofft will have engineering supervision over all TVA construction. He moves up from project manager at the 1.6-million kv Johnsonville Steam Plant where four generating units are being installed.

Lofft first joined TVA in 1935, left in 1943 and rejoined in 1950. He is a graduate of Bucknell University's engineering school.

Built to last 100 years...or more

Gold Bond Applicator: Taylor Seidenbach, New Orleans, La.



Gold Bond Corrugated Asbestone "400" actually grows stronger with age

"We looked ahead when we roofed and sided our New Orleans plant," say J. F. Kirkpatrick, vice-president and plant manager of the Edwin H. Fitler Co., manufacturers of manila rope and sisal twine.

"The 200,000 square feet of Gold Bond Corrugated '400' in the roof and sidewalls are built to last—and we save a considerable amount of money each year on maintenance costs."

Corrugated Asbestone *permanently resists fire, weather, corrosion*—and helps to keep temperatures cool on the hottest days.

Does the Fitler "400" Story suggest a Gold Bond® Corrugated Asbestone use to you? Wherever you use it, you're getting strength and good looks for a lengthy lifetime. For further details, write Dept. EN-17, National Gypsum Company, P. O. Box 5257-B, New Orleans 15, La.

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University of California, general classrooms and office building, Los Angeles, Calif. Austin, Field and Fry, architects. Robert E. McKee Co., contractor.

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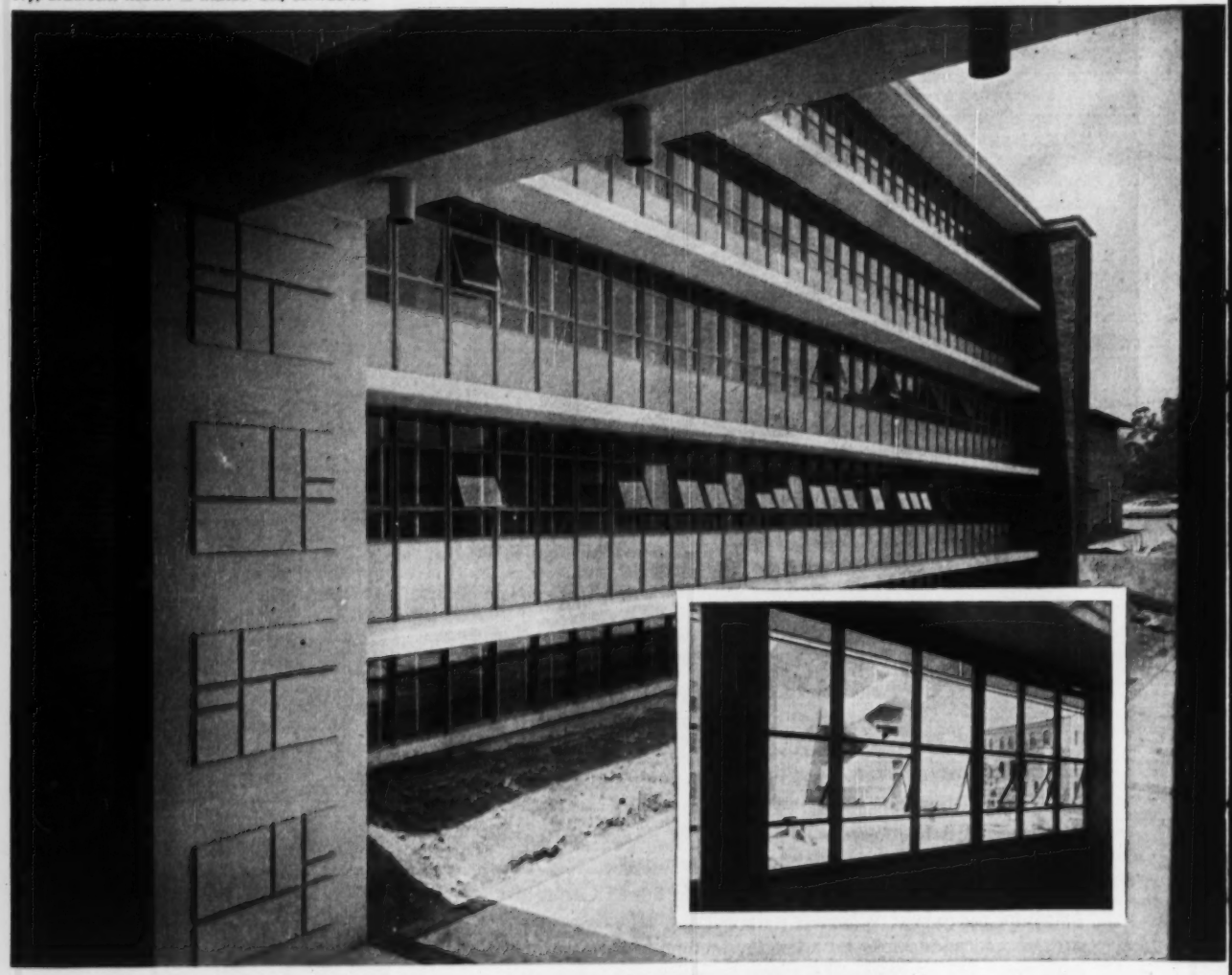

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See how effectively Vision-Vent blends with masonry to create truly imposing buildings that are completely functional.

Vision-Vent is Truscon's exciting method of fast, economical wall construction. Vision-Vent goes up like other curtain-wall systems. Fast. Easy. With this important plus—it's a wall with window already in place.

The Vision-Vent system incorporates all mass-production and installation economies of standard steel windows. Each module is complete, sill to ceiling, including fixed lights, awning-type ventilator or Truscon Double-Hung Steel Window, and insulated panel.

For design distinction, insulated panels may be furnished in *colored* porcelain enamel, stainless steel or aluminum. Panels have an insulating value equal to that of an ordinary masonry spandrel wall. They retain interior heat; they provide for air-conditioning efficiency. Wall thickness of less than 1½ inches provides extra square-feet of floor space. Light weight is reflected in structural savings.

Vision-Vent has had a tremendous success in all types of single- and multi-story applications. Truscon window engineers will be glad to study your plans and develop design details and costs. More facts in Sweet's, or send coupon.

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Investigate the advantages of pre-stressed concrete. Truscon Stressteel Tensioning Bars make pre-stressing completely practical and fully competitive. You can apply pre-stressing in building frames, bridges, columns, beams, roof slabs, retaining walls and other structures. Pre-stressed concrete construction can increase strength, cut dead weight, save materials and allow longer spans. And, it can get you out of the structural-steel squeeze. Send coupon for design manual.

THINKING "CURTAIN WALL"?

New Truscon booklet offers information to help architects, engineers and contractors make most efficient use of curtain-wall construction. It contains design data and detail drawings covering seven different Truscon Metal Curtain-Wall types. It shows how the Truscon system meets architectural and structural requirements without losing the benefits of efficient shop fabrication, with the designer maintaining full freedom of choice in adapting the proper wall to the structure. Send coupon for your copy.

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• *Photo courtesy Russell, Burdsall & Ward Bolt and Nut Co.*

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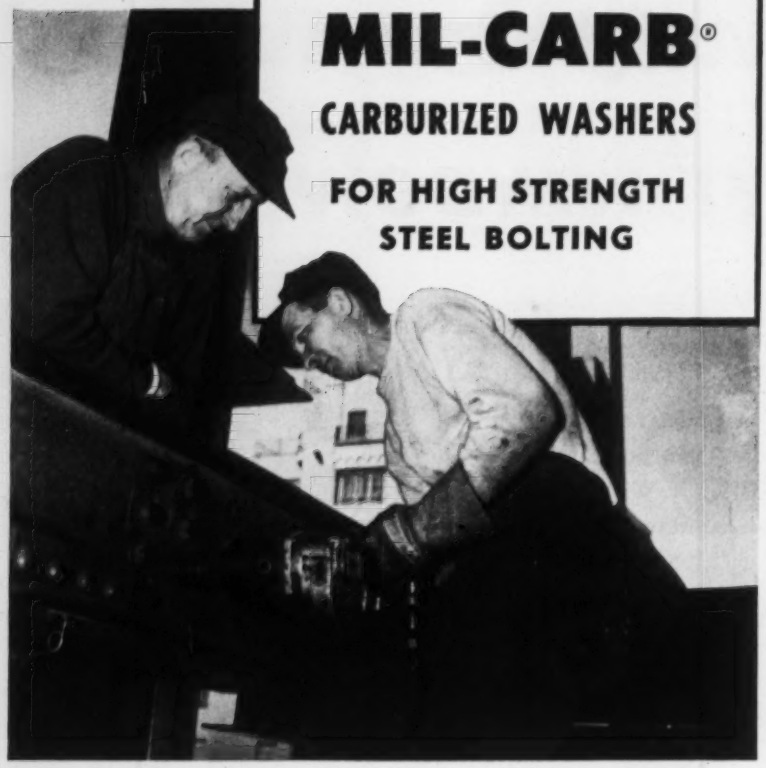

Contractors know a nut and bolt assembly is only as strong as its washers. That's why in high strength structural steel bolting, quality-conscious consulting engineers and contractors demand washers that match the best nut-and-bolt assemblies in . . .

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3. **Uniformity**

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Mil-Carb Washers are fabricated from *prime* carburizing quality special soundness steel to insure strength to equal or exceed the rigid specifications of ASTM designation A-325.

Maximum holding power is assured by a closely supervised carburizing process which retains inner ductility of the metal, yet provides an exceptionally hard "outer skin". It's this tough "outer skin" which permits torquing nuts to specification maximums without danger of "galling" or grinding of the washer . . . imperative for permanent, uniformly strong, tight joints!

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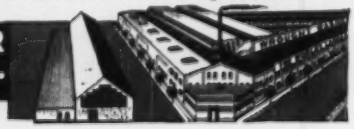

Obituaries

Charles A. Haskins, consulting engineer, Kansas City, Mo., died on Dec. 28. He was 70 years old. Although best known as a sanitary engineer, Mr. Haskins, from 1934 to 1939, was chief engineer and architect of the Missouri State Building Commission. A graduate of the University of Kansas in 1910, he was professor of sanitary engineering there from 1913 to 1920, while at the same time serving as assistant to the chief engineer of the Kansas State Board of Health. He was a captain in the Sanitary Corps of the U. S. Army during World War I. Mr. Haskins at the time of his death was senior partner in the firm of Haskins, Riddle & Sharp.

Ernest A. Crocker, 76, former rate consultant for the California Toll Bridge Authority, died Nov. 22 in Berkeley, Calif. Other state bodies for which he worked include the Department of Institutions and the Department of Water Resources. Crocker held degrees in economics as well as in mining and mechanical engineering from the University of Wisconsin, Iowa State College and the University of California.

Raymond E. Kittredge, 70, professor-emeritus of engineering and a member of the University of Iowa faculty since 1913, died Dec. 19 in Iowa City. A native of Beverly, Mass., Professor Kittredge received his civil engineering degree from the University of Maine in 1906, and in 1925 became professor of transportation engineering at Iowa. He was author of "Elements of Railway Engineering," a standard reference work.

Roy H. Slocum, 80, professor of civil engineering at North Dakota Agricultural College for 45 years, died Nov. 15 at Fargo, N. D. A 1900 graduate of the University of Illinois, Professor Slocum was a member of that school's faculty until 1907, when he went to Fargo. He retired from the North Dakota Faculty in 1952.

William T. Vaughn, 48, construction superintendent for Manhattan Construction Co. at Houston, Texas, died in Houston Dec. 17. A native of Tennessee, Vaughn was a resident of Houston for 30 years. Before joining Manhattan, he worked for Texas Gulf Construction Co. for 10 years as superintendent.

Irwell N. Woodworth, 78, who had spent more than 40 years as a civil engineer at Stambaugh, Mich., died Dec. 19, almost immediately after his election as Iron County surveyor.

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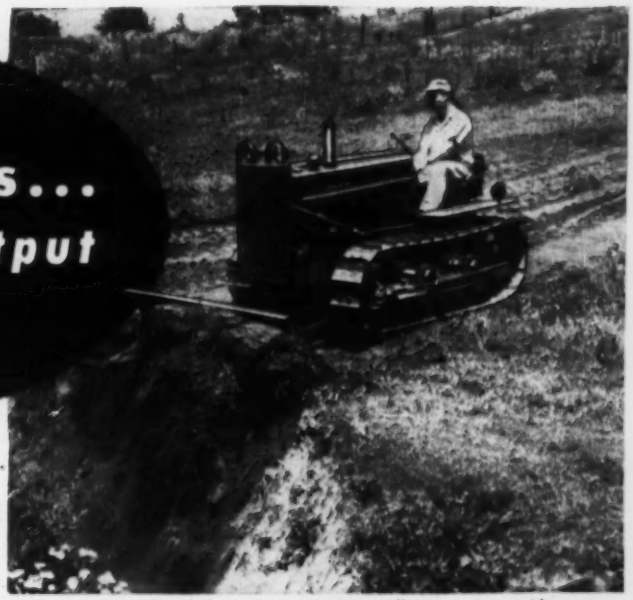
Boost Your Output and Profits...



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WHEN you're figuring costs, how many times have you wished for a rugged, compact, inexpensive power unit that would turn in a really BIG day's work at costs far below tractors you may now be using?

John Deere, with nearly 120 years' experience in the manufacture of quality equipment and with sales-service facilities conveniently located, invites you to see:

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(2) The new "420" Crawler Tractor and equipment—big enough to handle many jobs previously handled by heavier tractors costing thousands of dollars more, yet small enough to be transported on inexpensive trucks.

You will find these modern power units simple, easy to understand, and easy to service. They are sure-footed and stable . . . inexpensive to buy and maintain. Both tractors have a world of power for their size (approximately 25 h.p. on the drawbar). "Live" hydraulic system provides effortless control of equipment. Deep-cushion adjustable seat makes them extra comfortable to ride.

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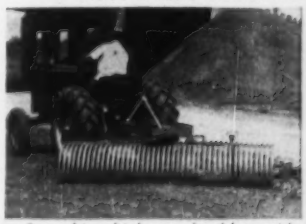

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64 of America's Expressways Benefit from Armco Products

Typical expressway using Armco Products

Here is a good indication of the nation-wide acceptance of Armco Products for highway construction and drainage. Armco Products are installed on practically every major expressway in the country (see list on this page).

Obviously, Armco Products had to meet specifications. But more important, they offered one or more advantages . . . lower cost, easier or faster installation, better delivery, more durability or greater strength.

Which Products Do You Need?

In general, Armco Products consist of drainage pipe in the world's widest selection of types, sizes, shapes and coatings. They also include foundation piling, guardrail, retaining walls, tunnel liner plates, steel buildings, bridge plank, steel sheeting and end sections for the highway market. Write us for literature and other data on these products. Armco Drainage & Metal Products, Inc., 3307 Curtis Street, Middletown, Ohio. In Canada: write Guelph, Ontario, Export: The Armco International Corporation.

Armco Products Have Been Installed On All of these Expressways

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Augusta Expressway
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Calumet Expressway
Congress Street Expressway
Connecticut Turnpike
Dallas Expressway
Davison Expressway
Dennis Roberts Expressway
Denver-Boulder Turnpike
Eden Expressway
El Dorado County, U.S. 50
Everett to Spokane, U.S. 2
Ft. Worth-Dallas Toll Road
Garden State Parkway
Golden State Freeway
Harbor Freeway
Hollywood Freeway
Houston Expressway
Indiana Toll Road
Jacksonville Expressway
Kansas Turnpike
Kentucky Turnpike
Long Beach Freeway
Long Island Expressway
Maine Turnpike & Extension
Massachusetts Turnpike
Merritt Parkway
Muncie Expressways
New Hampshire Turnpikes
New Jersey Turnpike & Extensions
New Orleans Expressway
New York Thruway & Extensions
Ohio Turnpike
Pasadena Freeway
Paseo Bridge & Expressway
Penn-Lincoln Parkway
Pennsylvania Turnpike & Extensions
Port Angelos to Chinook, U.S. 101
Port Arthur Expressway
Queen Elizabeth Way
Rhode Island Expressway
Roseville-Sacramento Freeway
San Bernadino Freeway
San Diego Freeway
Santa Ana Freeway
Schuylkill Expressway
Seattle to Spokane, U.S. 10
Shasta County, U.S. 99
Sunshine State Parkway
Tacoma to Clarkston, U.S. 410
Trans-Canada Highway
Tri-State Highway
Turner Turnpike & Extensions
Valley Highway
Van Brunt Parkway
Vancouver to Bellingham, U.S. 99
Ventura State Freeway
West Virgina Turnpike
Wilbur Cross Parkway

Armco Construction Products

ARMCO®

Promise to Remedy Defects Survived Delivery of Deed

A Maryland court has held that an oral agreement by a builder to remedy defects in a house he built was enforceable and that the obligation was not discharged by the owner's acceptance of the deed. The facts were these:

A party purchased a plot of land on which the seller agreed to erect a building in accordance with certain plans and specifications. When the building was completed, the buyer took possession and paid the balance of the purchase price, and the seller delivered the deed to the buyer. At the time the final transaction took place, the seller orally agreed that it would repair any defects that might appear in the work.

Shortly after the buyer moved into the house, the cellar became flooded because the cellar walls and floor had not been properly waterproofed as called for by the plans and specifications. The buyer promptly made demand on the seller to remedy the defects and, upon his refusal to do so, brought an action to recover the cost of remedying the defective work. The trial court dismissed the action on the ground that the acceptance and occupancy of the building constituted a waiver of defects and that the alleged oral agreement to remedy the defects was invalid for lack of consideration.

The decision of the trial court was reversed on appeal, the appellate court holding that the agreement to remedy the defects was enforceable.[1] The appellate court stated: "It is an accepted rule that a prima facie presumption arises from the acceptance of a deed that it is an execution of the entire agreement for the sale of the realty, and the rights of the parties in relation to the agreement are to be determined by the deed. However, parol evidence may be given of collateral facts relating to an agreement for the sale of realty, even though a deed has been executed, if the facts are consistent with the deed and do not tend to contradict it. Stevens v. Milestone, 190 Md. 61, 65, 57 A. 2d 292; Edison Realty Co. v. Bauernschub, 191 Md. 451,458, 62 A. 2d 354.

"It is true that where defects in the work of construction of a building are known or ought to be known by the purchasers of it, but no complaint about the quality of the work is promptly made by them, acceptance of the property by them will discharge any right which they might have had to damages for the defects. Laurel Realty Co. v. Himelfarb, 194 Md. 672,678, 72 A. 2d 23. However, the law will not raise any presumption that the right to damages for defects in the work of construction has been discharged by acceptance of the property by the purchasers, unless there has elapsed a length of time unreasonable under the circumstances without a complaint by the purchasers."

(1) Barrie v. Abate, 121A. 2d 862, Court of Appeals of Maryland, April 10, 1956.

Waiver of Right to Rescind Contract Because of Fraud

One may rescind a contract because of fraud. But the right to rescind can be waived by accepting the benefits of the contract after the fraud has been discovered. The decision to rescind must be made promptly.

"It is not requisite," one court has said, "that the defrauded party shall be acquainted with all the evidence constituting the fraud before the duty to act by way of rescission arises. . . . When he has evidence sufficient to reasonably actuate him to rescind the contract and on which he has once acted, no subsequent discovery of cumulative evidence can operate to excuse waiver of the fraud, if one has in the meantime occurred, or to revive a once lost rescission. The election to waive the fraud once deliberately made is irrevocable, vacillation or speculation cannot be tolerated."[1]

In this case, a lumber company brought an action against the buyer of cedar logs and others to recover the amount allegedly due under the contract. The buyer counterclaimed a rescission of the contract on the ground of fraud. The evidence indicated that the buyer continued to accept delivery of the logs after he had knowledge of the alleged fraud. Under such circumstances, the court found that the buyer had waived the right to rescind the contract.

(1) United States Plywood Corp. v. Hudson Lumber Co., 139 F. Supp. 19, quoting from Richardson v. Lowe, 149 F. 625,631.

Offer and Acceptance In Law of Contracts

In order that the acceptance of an offer shall constitute a valid contract, the acceptance must comply with all the terms of the offer.

"A counter-offer by one party relating to the same matter as the original offer, is a rejection of the original offer, unless the offeror in his offer, or the offeree in his counter-offer states that regardless of the counter-offer, the original offer shall not be terminated."[1]

(1) Talbert v. Seek, 122 A. 2d 469, Court of Appeals of Maryland, May 3, 1956.

Time Is Not of the Essence Unless Contract So States

The legal consequences of putting a completion date in a building contract may depend on the language of the contract and upon the actions of the parties.

In one case, a Pennsylvania court has ruled that a contractor's failure to perform on time is not a breach of contract when the contract does not specify that time is of the essence and when the delay is induced by the action of the owner.

That case involved a contract for the purchase of land on which the seller was to erect a building according to certain plans and specifications. The contract was entered into on July 11, 1955, and provided that the purchaser would make a payment of $2,000 for the land before the seller was to commence the construction of the building. The contract also provided that possession of the building was to be given to the buyer on Oct. 1, 1955. The building was not completed within the time specified and the buyer brought an action for the purpose of recovering the down payment and obtained a judgment which was reversed later on appeal.[1]

The seller contended that the delay in completing the building resulted from the failure of the buyer to make promptly the down payment of $2,000 after the contract was signed. The contract was entered into on July 11, 1955, and the down payment was not made until Aug. 16, 1955. The seller started the construction of the building immediately after the down payment was made. The appellate division held that since the contract did not contain any provision to the effect that time was of the essence of the contract the purchaser was not entitled to a return of the down payment. "Time is not of the essence in a contract unless it is specifically so provided or unless the circumstances clearly indicate that it was the intent of the parties."

It is apparent from the above facts that the failure of the contractor to complete the building within the stipulated time resulted from the purchaser's own fault, that is, to pay promptly the down payment required to be made before the construction was to start. Having caused a substantial delay in starting the work, the purchaser is in no position to claim that the failure to complete the building within the stipulated time constituted a breach of contract.

(1) Bagajaviensky v. Cogan, 124 A. 2d 412, Superior Court of Pa., July 17, 1956.

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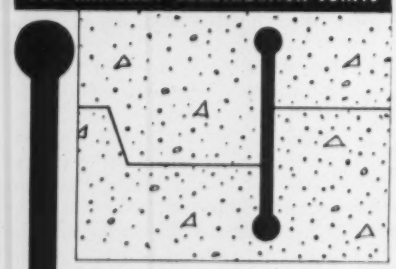
Williams Efficiency Waterstops are made from Natural Rubber Stock, and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners—will not tear from shear action. Tensile Test: 3990 lbs.; Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable. These highly effective Waterstops are now in use in hundreds of industrial plants, commercial and public buildings throughout the country.
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Unit Prices

Michigan Airport Paves Taxiways and Apron

Three contracts covering bituminous and reinforced concrete pavement and a drainage system at Capital City Airport in Lansing, Michigan, for Michigan Department of Aeronautics, total $180,584, L. C. Drews, is chief engineer.

The $34,529 contract to Spartan Asphalt Paving, Lansing, is 13% below the second low bid and 4.6% below the engineer's estimate. The contractor will pave the N/E-S/W taxiway with a 12-in. bituminous subbase course and a 6-in. base course of crushed aggregate. Both courses are compacted in place.

The $140,990 contract for 24,000 sq yd of reinforced concrete pavement on a taxiway with apron went to L. A. Davidson of Lansing. This price beats the second low bid by 5.2% and the engineer's estimate by 3.2%.

At $15,065, Millet Excavation Co., Lansing, is 5.5% below the second low bid and 35% below the engineer's estimate. They will furnish and install reinforced concrete sewer and culvert pipe to drain the E/W runway.

Bidders on the three contracts include:

Bituminous Paving

1C	Spartan Asphalt Paving, Lansing, Mich	$34,529
2	The Ferris Co., Mason, Mich	39,667
4	Angell Construction Co., Lansing, Mich	44,478
EE	Mich Dept of Aeronautics	36,183

Bids: 11-20-56 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, unclassified	cy	1,844	$1.75	$1.00
Subbase crse, comp in place, 12"	cy	1,860	2.35	2.25
Base crse, cr agg, comp in place, 6"	cy	930	3.45	8.00
Bituminous tack coat, MC-3	gal	1,640	0.28	0.23
surf coat	t	1,650	12.50	14.00
prime coat MC-1	gal	1,800	0.28	0.23
seal coat MC-3	gal	3,400	0.32	0.23
Cover aggregate	t	135	3.75	8.00
2 bank undergr elec duct, type I, 3"	lf	68	5.00	2.50
Turfing	ac	0.7	300.00	400.00

Work to start: June 57 To be completed: Aug 57
Liquidated damages: $20 per day

Concrete Paving

1C	L. A. Davidson, Lansing, Mich	$140,990
2	Angell Construction Co., Lansing, Mich	148,770
4	Cross & White, Grand Rapids, Mich	168,308
EE	Mich Dept of Aeronautics	145,644

Bids: 11-20-56 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, unclassified	cy	6,258	$0.50	$0.50
Subbase crse, comp in place, grade A, 8"	cy	5,400	2.00	2.00
Pvmt, PCC, cl A, reinf, 8"	sy	24,100	5.18	5.50
Elec duct, undergr, 2 bank, conc encd, 3"	lf	312	4.00	4.50
4 bank, conc encd, 3"	lf	54	4.00	4.50
Catch basin, reconst	ea	2	150.00	150.00
Turfing, seed & fertil, f&p	ac	2.3	200.00	150.00

Work to start: June 57 To be completed: Sept 57
Liquidated damages: $30 per day

Drainage—EW Runway

1C	Millett Excavation Co., Lansing, Mich	$15,065
2	Frank & Walter McNamara, Lansing, Mich	15,938
9	The Ferris Co., Mason, Mich	25,291
EE	Mich Dept of Aeronautics	23,190

Bids: 11-20-56 Items	Unit	Quantity	Unit Prices 1C	2
RCP, std, sew, 27"	lf	250	$5.75	$6.25
culv, 27"	lf	400	6.20	6.75
sew 24"	lf	155	5.40	5.90
culv, 24"	lf	405	5.90	6.30
21"	lf	300	5.40	5.70
18"	lf	330	4.10	4.50
sew, 15"	lf	210	3.15	3.70
culv, 15"	lf	310	3.35	3.80
sew, 8"	lf	353	2.40	2.60
Catch basin with cover, 4'	ea	9	200.00	180.00
Manhole with cover, 4'	ea	1	190.00	200.00
Backfill, porous, MSHD grade A	cy	174	1.50	1.70
Turfing	ac	1.5	100.00	25.00

Work to start: January 57 To be completed: June 57
Liquidated damages: $20 per day

Truss Swing Span on South Carolina Bridge

A 245-ft power-operated truss swing span and 20 30-ft concrete spans will replace an old bridge over the Intercoastal Waterway, the Stono River section at Johns Island, Charleston County, South Carolina. This is a Federal Air Project of the South Carolina Highway Department.

The $536,506 contract to McMeekin Construction Co., Cheraw, S. C. is 1.1% below the second low bid and 1.6% below the engineer's estimate. The table gives the contractor's unit price and lump sum bids and an analyses as percent of the total contract price.

The contractor will furnish and erect all material. He will also remove the obsolete structure.

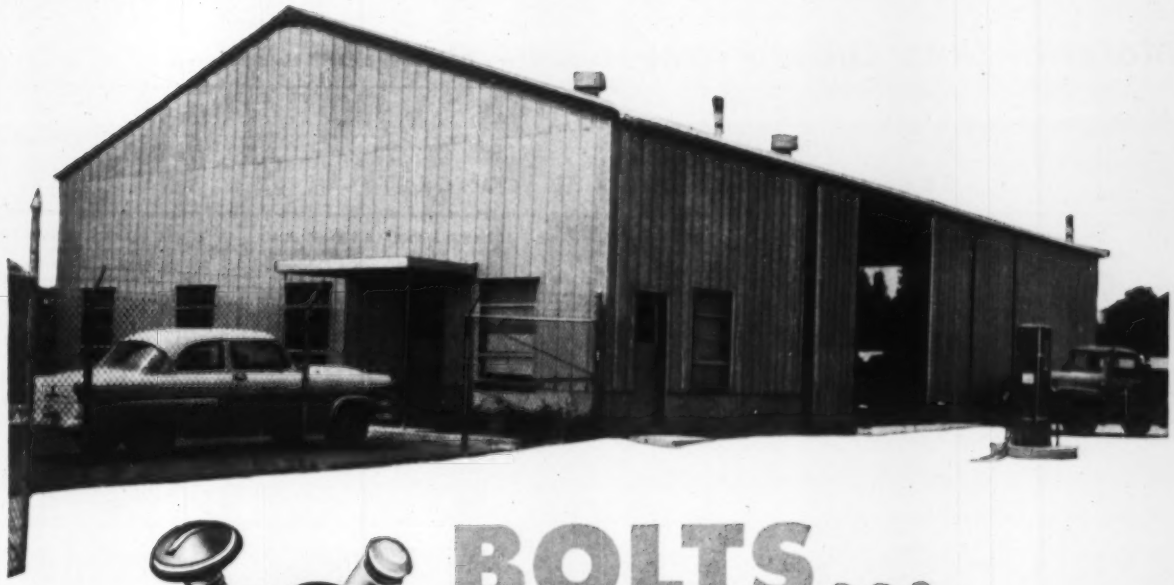
Specifications call for prestressed concrete piles in piers and creosoted timber piles in fenders. Class A concrete must contain 6.4 bags of cement per cu yd.

Charleston wage rates include $2.82 for structural iron workers, $2.59 for reinforcing iron workers, $2.85 for welders, $1.50 to $2.00 for equipment operators and $1.05 for common laborers.

The five bidders on this bridge job include:

1C	McMeekin Const. Co., Cheraw, S. C	$536,506
2	Robert E. Lee & Co., Inc., Manning, S. C	542,650
5	Diamond Const. Co., Savannah, Ga	639,807
EE	S. C. State Highway Department, Columbia	545,000

Bids: 11-13-56 Items	Lump Sum Price	% of Total
Conc, cl A, for structures 970.1 cy @ $85.00	$83,056.50	11.75
Steel, reinforcing, for structures 189,661 lb @ $0.13	24,855.93	4.60
Timber, treated, structural 49.489 Mbm @ $400.00	19,795.60	3.69
Steel superstruct, 245' span	149,000.00	27.77
Swing span floor	34,100.00	6.35
Piles, creosoted timber 16,700 lf @ $3.00	50,100.00	9.34
Piles, prestressed concrete, 18" 7,585 lf @ $9.50	72,057.50	13.43
Slope drains, concrete block 180 lf @ $3.00	540.00	0.10
Control house and privy	3,200.00	0.60
Machinery	62,000.00	11.56
Electrical equipment	50,000.00	9.32
Existing bridge, remove & dispose of	8,000.00	1.49
Total	$536,505.53	100%



BOLTS...

One reason why **Butler** *metal buildings are a better buy*

Nothing holds like a bolt! That's why Butler metal buildings are fastened throughout with bolts — to give you a durable, yet economical building that will require less maintenance, last longer, and actually cost less to own. There are no straw nails or self-tapping screws used to attach panels — no chance for thermal expansion and contraction to work fasteners loose and cause leaks.

Two types of bolts are used in Butler buildings—standard galvanized bolts where easy expansion or re-location of the building is desired—or new Butler Lock-Bolts which speed construction and make permanent metal-to-metal connections. Neoprene washers on both types insure that Butler panels will stay weather-sealed and tight for a lifetime.

All-bolted construction is just one of seven features that make Butler metal buildings a better buy. An illustrated bulletin describes them all. See A.I.A. File No. 17-L in "Sweet's" or write for a free copy.

Need a warehouse, equipment shelter, maintenance shop or construction field office? See Butler and save

BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY

7418 East 13th Street, Kansas City 26, Missouri

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Sales offices in Los Angeles, Richmond, Calif. • Houston, Tex. Birmingham, Ala. • Atlanta, Ga. • Minneapolis, Minn. • Chicago, Ill. Detroit, Mich. • Cleveland, Ohio • Syracuse, New York City, N.Y. Washington, D.C. • Burlington, Ont., Canada

Exclusive New Butler Lock-Bolt holds roof paneling with a 1500 lb. grip. Neoprene washer gives life-time weather-tight seal. Special torque wrench speeds tightening and eliminates chance for human error.

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Iron and Steel Products: Last, Dec 13; Next, Jan 17
- Wood Products, Glass, Explosives, Chemicals: Last, Dec 20; Next, Jan 24
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Dec 27; Next Jan 31
- Wage Rates, Building Board, Lath, Insulation: Last, Jan 3; Next Jan 31

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 del. 50 cy & over
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.31a	$3.90a	$3.57	$2.18	$2.28	$2.50‡	$2.18	$2.33	$1.55	$1.65	$0.175	$...	$13.75g
Baltimore	4.27e	3.86e	3.64e	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18	.18a	12.75
Birmingham	3.73	3.15af	...	2.53n	2.53n	2.13n	2.75	2.75	1.55	1.65	.18	.18	12.30
Boston	4.91be	4.52a	4.71e	3.00a	3.00a	3.00a	1.65a	1.75a	...	...	.23	.275a	14.00h
Chicago	4.13a	3.72a	3.87	3.78‡b	3.78‡b	4.13‡b	3.95‡b	3.95‡b	2.25‡	2.25‡	.25	.25b	14.00p
Cincinnati	4.22e	3.81e	3.90	2.29‡c	2.34‡c	2.34‡*	2.54‡c	2.54‡c	...	...	.205	.25a	12.90p
Cleveland	N.A. in C.L.	3.74	...	2.15ef	1.95f	1.65	4.30‡a	4.30‡a	3.30‡a	3.30‡*	...	.23	16.15
Dallas	3.35a	3.95a	3.23	2.61	2.64	1.98	2.43	2.63	....	....	.11e	.2675	11.25
Denver	4.89a	4.09a	4.89	1.90	2.05	1.20	...	...	...	...	.22	.245a	10.70
Detroit	4.10a	3.60a*	3.73	4.25‡b	4.25‡b	4.00‡b	3.75‡	3.75‡	3.50‡	3.50‡	.23	.24a	14.20
Kansas City	4.30b	4.10b	4.10	...	...	1.70‡a	2.00‡a	2.00‡a	....	....	.20a	.24c	13.50b
Los Angeles	5.12ek	4.68ek	5.80	2.41‡a	2.76‡a	2.41‡a	2.41‡a	2.46‡a	....	....	.145/m	.285m	13.95ah
Minneapolis	4.68g	4.27a	4.27	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.19	...	14.30f
Montreal	3.11d	2.86d	3.50	1.95‡a	2.20‡a	2.25‡a	1.95‡s	2.20‡s	....	....	.20	.20a	10.80ek
New Orleans	3.75a	3.45a	3.70	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	13.65
New York	4.64a	4.23a	3.88	3.05bk	3.05bk	2.15bk	2.90bl	2.90bl	....	....	.25	.30b	16.00an
Philadelphia	4.34/4.69‡a	3.94/4.31‡a	3.70/4.33‡	2.85‡ap	2.85‡ap	2.35‡ap	2.70‡	2.80‡	2.00	2.35	.24/.30	....	13.80de
Pittsburgh	4.15a	3.76a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	4.01/4.33c	3.61/3.93c	3.86/4.18	3.25am	3.10am	2.40/3.10am	1.60j	1.70j	....	....	.24	.30e	12.75/13.25
San Francisco	3.94e	3.54c	....	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28el	12.50c
Seattle	4.30a	3.75a	...	4.00‡bm	4.00‡bm	4.00‡bm	4.50‡bm	4.50‡bm	....	....	.26	.27	13.30j
Toronto	4.00	4.00	4.00	2.30‡	2.30‡	2.00‡	2.05	2.05	2.05	2.05	.25	.29c	15.05

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add $13.11 to $19.16 per car switching charges *g fob mill + freight *h LCL.

SAND, GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1–3 mi zone. *p Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5½ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *h Less 2% for cash *i F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more *c 10–100 cy. brackets. *d 1–3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 8% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone. *p Includes 50c heating charge.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.30†	Buffington, Ind	$3.25†	Steelton, Minn	$3.45†	Muskegon, Mich	$3.30†	Toledo, O	$3.30†
Clinchfield, Ga	3.30†	Independence, Kan	3.10†	Leeds, Ala	3.15†	Saginaw, Mich	3.30†	Milwaukee, Wis	3.35†
Kingsport, Tenn	3.30†	Hannibal, Mo	3.35†	Duluth, Minn	3.45†	Wyandotte, Mich	3.30†	Green Bay, Wis	3.35†
West Des Moines, Iowa	3.35†	Northampton, Pa	3.20†	Hudson, N. Y	3.20†	Buffalo, N. Y	3.40†	Ironton, O	3.30†
Nazareth, Pa	3.20†	Universal, Pa	3.45†	Alpena, Mich	3.20†	Oswego, N. Y	3.45†	Montreal City	2.56†
Bath, Pa	3.20†	Waco, Tex. (+ 10¢ tax)	3.35†	Detroit, Mich	3.30†	Cleveland, O	3.35†	W. Winfield, Pa	3.45†
Easley, Pa	3.20†	Giant, S. C	3.35†	Howes Cave, N. Y	3.20†	Alsen, N. Y	3.20†	Security, Md	3.20†

† Prices to hold for first quarter of 1957.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT		ASPHALT BINDERS—FLUXES		CUTBACK ASPHALT MC		ROAD OIL	ASPHALT EMULSION RSI	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 10-lb. treat	Per ton, less than 80 penetration		Per gal., 80–300 penetration		per ton		Per gal.	Per gal.	
				Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	.....	.....	.....	$30.50	$45.00	$0.18	$0.26	$0.125Pw	$0.28Pw	$0.14	$0.125	$0.30
Baltimore	180.00‡	.....	.....	23.00s	.....	.095s	0.185s	.10swE	.19swE	.10s	.105s	0.195s
Birmingham	.....	82.00t	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	23.00ap	45.00ap	24.00as	40.00as	.105aFw	.23+Fw	.105a	.105aG	.23aG
Chicago	180.00‡	85.00‡b	3.95/4.00‡j	21.85b	31.85b	20.85bs	30.85bs	.10bwH	.18bwH	.08b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	82.00d	6.30g	23.00A	.....	23.00A	.....	.1025AwF	.....	.....	.1025AG	.30AG
Dallas	e	40.00	e	35.20	44.20	.1066	.1804	28.55	50.08	.1030	.1066	.1804
Denver	.....	80.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	119.00	.....	29.65	.....	29.65s	.....	.1285wI	.....	.1026	.....	.36
Kansas City	e	e	e	7.00cl	.....	18.60s	.....	.085+wJ	.....	.075c	0.125	.....
Los Angeles	e	.....	e	18.50dms	.....	18.50dss	.....	20.00dz K	.....	19.00dz	.09j	.19j
Minneapolis	.....	.....	3.73k	36.50	.....	26.50	.....	0.115w	.....	0.105	.1243	.....
Montreal	e	e	e	27.00m	39.60m	.135n	.198n	16.90mwE	20.90mwE	.133m	.197ns	.289ns
New Orleans	.....	.....	.....	17.60w	..... e	17.60ws	..... e	.085ws	..... e	.085B	.09BL	.....
New York	.....	.....	3.70f	23.80qCD	44.55qD	23.80qtCD	44.55tD	.1073wCDF	.1939wDF	.....	.1073CD	.1939D
Philadelphia	175/185	110/120	4.08	22.00	.....	22.00	.....	.095wF	.....	.095	.....	.....
Pittsburgh	185.00	48.00	4.60	27.00	38.00	.10	.21	37.00E	40.00E	.098	.11	.234
St. Louis	.....	.....	.....	20.63o	.....	.1764	.....	.0925fwM	.....	0.16	.105	.....
San Francisco	.....	70.00u	.....	23.00g	40.00g	23.00ghs	40.00ghs	24.00gN	41.50gN	23.75v	.10y	.19v
Seattle	.....	.....	.....	27.00s	40.50h	27.00ns	.....	28.50K	.....	24.75hs	.10h	.11hr
Toronto	.....	.....	4.40	34.20	50.66	0.19	0.34	0.20w	0.25w	10.20	0.20	.24

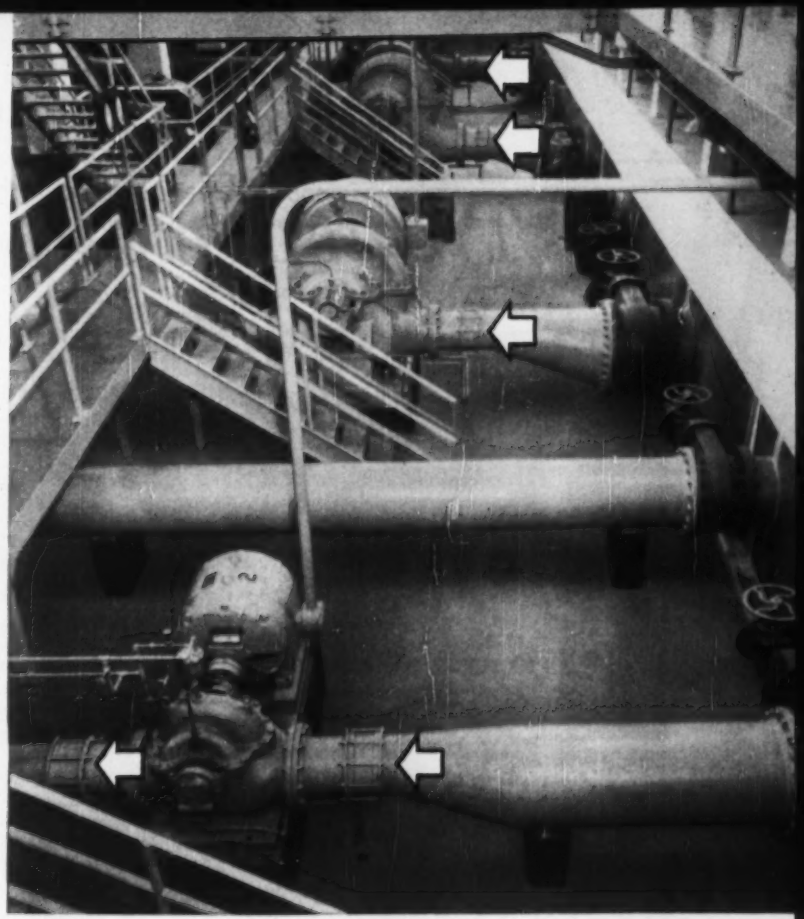
‡ Delivered.

PAVING BRICK & BLOCK: *a CL. *b 3 x 4 x 8. *c 2½ x 8½ x 4. *d LCL, truck deliveries. *e Not used. *f 2" Interior 6# treat. *g 3" *h 2" hr, 6# *i 3 x 3½ x 8½. *j 2½", 6 lb. tr.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50–110 penetr. *l Less than 100 penetr. *m 40/50 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/85 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85/200 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland *z F.o.b. Edmonds *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *C Bulk. *D Prices based on transporting to Manhattan via truck. *E RC. *F Also RC. *G Also MS, SS. *H RC 0–8 incl. *I MC 4. *J MC, RC .0675. *K MC 3, 4 & 5. *L MS. *M MC 1–5, RC 1–5, .089. *N MC 3. *O fob Roxanna, Ill *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

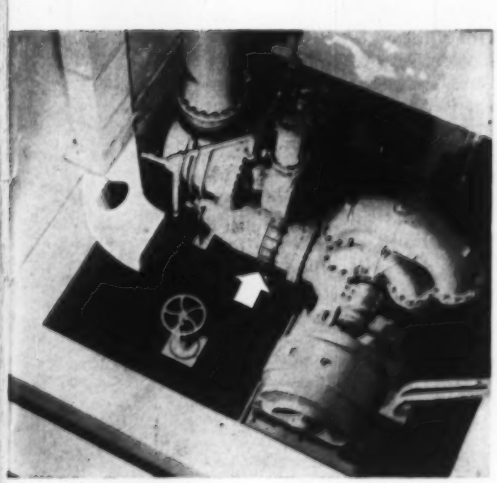
SPEAKING OF PUMP PIPING

The Elm Fork Water Plant Pumping Station of Dallas, Texas, doubles the city's purified water supply with its capacity of 105 mgd at 150 psi. Dresser Style 38 Couplings were installed on suction and discharge lines connecting high lift station pumps (right) and on discharge side of low lift pump (below)... to take care of movement or misalignment, and to make installation and disassembly easy. Consulting engineering was by Myers and Noyes and Associates; the contractor was E. E. Farrow Company.



DOUBLE DUTY FOR DALLAS

DRESSER COUPLINGS PROVE IDEAL FOR PUMP CONNECTIONS



Having spent eight million dollars for this superb new water facility, the city of Dallas protects its investment with Dresser-Coupled pump connections.

Thus, each line is provided with *built-in* flexibility. The resilient wedge-shaped gaskets in every Dresser Coupling absorb and cushion vibration and pipe-transmitted stresses.

Moreover, the unique Dresser design assures fast, foolproof installation. There's no need for exact pipe fitting or aligning operations. Joints are sealed bottle-tight for life . . . with a wrench, the only tool required. Any workman can make 100% tight joints and maintenance is simplified by easy teardown.

Give all your water piping jobs the same advantages. Specify Dresser Couplings—the proved, low-cost, trouble-free way to make pump connections . . . and for every other type of piping installation.

✔ *See your piping supplier today on how you can save on water and sewerage projects.*

DRESSER

ONE OF THE DRESSER INDUSTRIES

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. Warehouses: 1121 Rothwell St., Houston; 101 S. Airport Blvd., S. San Francisco. Sales offices also in: New York, Philadelphia, Chicago, Denver. In Canada: Toronto and Calgary.

LOW-COST
Transportation System

Moving air, water or materials wherever you need them on construction jobs is a simple matter with a dependable vehicle like Naylor Spiralweld pipe.

This distinctive steel pipe is light in weight – easy to handle and install, even over the roughest terrain. But, don't let this light weight fool you because Naylor pipe is built with the exclusive lockseamed, spiralwelded structure that gives you the extra strength and safety that you'd normally expect only in heavier-wall pipe.

The same light weight that simplifies handling and installation also pays dividends in lower costs. And further economy in time and money is assured through use of the one-piece Naylor Wedgelock coupling–the fastest method of pipe connection available today.

Naylor pipe sizes range from 4 to 30 inches in diameter to take care of your needs in air and water lines, ventilating systems, and materials handling lines. *Write for Bulletins No. 507 and No. 513.*

NAYLOR

NAYLOR PIPE COMPANY
1248 East 92nd Street, Chicago 19, Illinois

Eastern U.S. and Foreign Sales Office:
350 Madison Ave., New York 17, New York

Bids Asked—Low Bidders—Contracts Awarded—First Section—

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J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Mass., Falmouth**—ROADS AND UTILITIES—BA On Or About 1/23—U. S. Eng., 150 Causeway St., Boston, Zone 14, roads and utilities, Otis Air Force Base, ENG-19-016-57-134. $600,000-$700,000. Plans deposit $10. CD 8/21.

† **Mass., Falmouth**—APRON ELECTRICAL-OUTLET—BA On Or About 1/24—U. S. Eng., 150 Causeway St., Boston, Zone 14, apron electrical-outlet grid sys. and supporting facilities, Otis Air Force Base, ENG-19-016-57-136. $200,000-$225,000. Plans deposit $10. CD 8/21.

BUILDINGS—SLC

▲ **Connecticut** — HOUSING, etc. — U. S. Eng., 150 Causeway St., Boston, Mass., soon lets contract construct and finance, Capehart Family housing and on-site imprvs., Hartford Defense Area, Simsbury, Plainfield and East Windsor, ENG-19-016-57-26. $1,056,-000. Moore & Salsbury, 1007 Farmington Ave., West Hartford, Conn., archts.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comn., State House, Augusta,
Cianchette Brothers, Inc., Pittsfield, Me. CA **$316,025** (8 bidders) bridge, F.A. Secondary Proj. S 0100 (4), York. Bids Dec. 19. CD 12/6.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord,
V. D'Angelo & Son, Inc., 52 Ashton St., Everett, Mass. LB **$189,344** (8 bidders) surf. treated gravel road 2.62 mi. Mountain Ave., Northwood and Deerfield. Bids Dec. 20. CD 12/12.

VERMONT—State Dpt. Hys., State House, Montpelier,
Warner-Griswold Corp., Essex Junction, Vt., CA **$239,-965,** sub-base, double tack coat of refined tar with peastone seal, Vt. Rte. 117, the Essex Jct.-Richmond Rd. from Essex-Jericho town line extending southerly 3.528 mi. S 30 (3), Jericho-Richmond. Bids Dec. 21. CD 12/10.

State Airport Management Bd., c/o div. Bldg. Constr., 38 Chauncy St., Boston, Mass., rejected bids Nov. 20. L-801 Contr. No. 2, constr. paving auto parking areas, aprons, holding station, etc., Logan Airport, EAST BOSTON, MASS. LB **$571,328.** CD 11/26, under LB.

▲ **CONNECTICUT**—State Hy. Comr., State Office Bldg., Hartford,
Frouge Constr. Co., 141 North Ave., Bridgeport, Conn., CA **$1,888,672.** five toll stations on Connecticut Turnpike, at Greenwich, Norwalk, Stratford, West Haven and Branford. Bids Dec. 10. CD 12/12 under LB.

N. Benvenuti & Sons, 16 Elm St., New London, Conn., CA **$900,000.** sewage disposal plant, Olcott St., MANCHESTER, CONN. Town, Town Hall, Manchester, Conn.; Metcalf & Eddy, 1700 Statler Bldg., Boston, Mass., engrs. Awarded Dec. 19.

BUILDINGS—LB & CA

C. D. DiBiase Co., Inc., 551 Congress St., Portland, Me. LB **$445,230,** est. $500,000. employees' HOUSING and COMMUNICATION, E. H. & C. D., CABLE DISEASE BLDG., School for Feeble Minded, POWNAL, ME. State, Dpt. Institute Services, State House, Augusta, Me. Robert Wright, 460 Main St., Lewiston, Me., archt.

Gilbert Corp., 87 School St., Manchester, N. H., LB **$100,000.** INDUSTRIAL BLDG. and OFFICE BLDG., MANCHESTER, N. H. Standard Overall Dry Cleaning, Inc., Manchester, N. H. Carl E. Peterson, 1008 Elm St., Manchester, N. H., archt.

† **Iannuccillo Constr. Co.,** 1700 Smith St., North Providence, R. I., LB **$360,666,** Item 1; LB **$356,-466,** Item 2, flammable WAREHOUSE, U. S. Naval Supply Depot, NBy 5062, Spec. 5062/56, NEWPORT, R. I. First Naval Dist., 495 Summer St., Boston, Mass. Bids Dec. 19. CD 11/20.

Maloney & Riboem Constr. Co., 99 India St., Providence, R. I., LB **$658,000,** est. $600,000. Proj. EDU-1 VOCATIONAL TRAINING SCHOOL, Corliss Park, PROVIDENCE, R. I. State R. I. & Prov. Plants, Purch. Agent, State House, Providence, R. I. Bids Dec. 19. CD 11/29.

George B. H. Macomber Co., 25 Fordham St., Boston, Mass. LB **$970,000.** (2 bidders) Womens DORMITORY, Proj. 6-CH-4 (D), NEW HAVEN, CONN. Yale University, c/o Charles S. Gage, treas., 119 College St., New Haven, Conn. Bids Dec. 19. CD 12/4.

F. D. Rich Co., Inc., 322 Main St., Stanford, Conn. CA **$687,347.** 3 story red brick, limestone trim COURT HOUSE, Hoyt St., STAMFORD, CONN. Comrs. Fairfield Co., 172 Golden Hill St., Bridgeport, Conn. Bids Dec. 6, awarded Dec. 19. CD 12/18 under LB.

▲ **Fusco-Amatruda Co.,** 59 Amity Rd., New Haven, Conn. CA **$1,160,000.** 116,000 sq. ft. SHOPPING CENTER "Crossroads Plaza", WEST HARTFORD, CONN. Realty Development Corp., 95 Pearl St., Hartford, Conn. Awarded Dec. 18.

Southern New England Constr. Co., Inc., 66 Sanford St., Hartford, Conn., LB **$398,000** (4 bidders) CLUB HOUSE and indoor and outdoor swimming pool, Raymond Rd., WEST HARTFORD, CONN. Cornerstone Club, c/o Donald Blatt, town mgr., Town Hall, West Hartford, Conn. Bids Dec. 18. CD 12/18.

Bonvicini Building Co., Inc., 1500 S. Main St., Torrington, Conn., LB **$387,500** (4 bidders) Marion Ave Elementary SCHOOL, Marion, SOUTHINGTON, CONN. Town, School Bldg. Comn., Southington, Conn. Bids Dec. 20. CD 12/6.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. Y., Idlewild—DIRECTIONAL SIGNS—BA 1/22—At office Chief Engineer of the Port of New York Authority, 111 Eighth Ave., New York, Zone 11, fabrication, erection, complete installation of directional signs in central terminal area and area adjacent thereto at New York International Airport, Contr. NYA 650.043. Plans deposit $30. CD 2/25/53.

N. Y., Idlewild—TOLL BOOTHS, etc.—BA 1/22—At Office Chief Engineer of the Port of New York Authority, 111 Eighth Ave., New York, Zone 11, constr. toll booths, information booth and rest room at central terminal area at New York International Airport, Contr. NYA-650.044. Plans deposit $30.

New York—TOLL BOOTHS—BA 1/29—At office Chief Engineer of the Port of New York Authority, 111 Eighth Ave., New York, Zone 11, removal of existing toll booths and erection of new toll booths, Holland Tunnel, New York Plaza, Contr. HT-180.001. Plans deposit $30. CD 1/18/54.

† **Md., Andrews Air Force Base**—PARKING APRON—BA About 2/5—U. S. Eng., First and Douglas Sts. N.W., Wash., D. C., aircraft parking apron expansion, ENG-49-080-57-47-(46). CD 10/28/55.

† **Maryland and West Virginia**—BA About 2/19—U. S. Eng., First and Douglas Sts. N.W., Wash., D. C., channel imprv., North Branch Potomac River, Sec. No. 2, and railroad relocations local flood Protection Proj., Cumberland, Md. and Ridgeley, W. Va., CIVENG-49-089-57-11.

BUILDINGS—BA

▲† **N. Y., Bellmore**—SHOP—BA 1/22—U. S. Eng., 111 E. 16 St., New York, Zone 3, field maintenance shop, $1,000,000-$3,000,000, John J. Kassner, 111 Broadway, New York, Zone 7, archt. CD 12/20.

† **D. C., Wash.**—BUILDING ALTERATIONS—BA 1/23—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, alterations to Bldg. 70, Naval Research laboratory, NBy 6083. Plans deposit $25.

Md., Fort Ritchie—HOUSING—BA 1/23—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., construct and finance 70 housing units (Capehart) ENG-49-080-57-1-(1). Extended date. CD 12/27.

HEAVY CONSTRUCTION—LB & CA

† **Buck & Donohue, Inc.,** 790 Broad St., Newark, N. J. LB **$608,615.** (4 bidders) Endicott, Johnson City and Vestal Flood Control Proj., Unit No. 1, Westover, NEW YORK. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Dec. 27. CD 12/10.

† **U. S. Eng.,** 111 E. 16 St., New York 3, N. Y., cancelled bids to have been opened about Jan. 24, heating plant addn., Plattsburgh Air Force Base, ENG-57-198, PLATTSBURGH, N. Y. CD 12/12.

▲† **U. S. Eng.,** 111 E. 16 St., New York 3, N. Y. cancelled bids to have been opened about Jan. 18, hydrant refueling at Griffiss Air Force Base, ROME, N. Y. **$1,000,000-$3,000,000.** CD 12/12.

▲† **George M. Brewster & Son, Inc.,** 275 West Fort Lee Rd., Bogota, N. J. CA **$16,742,731.** runway and taxiway support facilities at Griffiss Air Force Base, ENG-30-075-57-67, ROME, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 12/20, under LB.

George W. Walker & Sons, Inc., 770 E. Elmwood Ave., Buffalo, N. Y. LB **$487,700.** (4 bidders) animal research bldg., Roswell Park Memorial Institute, SPRINGVILLE, N. Y. Bureau contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Dec. 20. CD 12/19.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
J. Robert Bazley, Inc., P. O. Box 298, Pottsville, Pa. CA **$5,694,425.** constr. 7.27 mi. divided hy. rein.-con., 24 ft. wide on each side of earth medial area, I-beam bridge, nine rein.-con. culverts, rein.-con., five I-beam bridges, two plate girder bridges, two rein.-con. bridges, grading and misc. constr. of ramps marginal roads, intersecting roads, between York and Loganville, U. S. 111, York Co. CD 12/5, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
J. Richard Nissley, Inc., Landisville, Pa. LB **$694,989.** (5 bidders) constr. 950 ft. rein.-con. open spandrel and steel I-beam bridge, divided hy. rein.-con. 22 ft. wide, bridge over Little Lehigh Creek, Salisbury Twps., T.R. 309, Lehigh Co. Bids Dec. 20. CD 12/3.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Pa.—**F. D. Kessler, Inc.,** Northumberland, Pa. LB **$2,-771,557.** (5 bidders) constr. 29,506 ft. divided hy. rein.-con. wid'n. existing roads, 1 plate girder, 4 I-beam and 3 rein.-con. bridges, South Whitehall, Upper Macungie, Lower Macungie and Salisbury Twps., T.R. 309, Lehigh Co.;
Pa.—**Harry C. Erb, Inc.,** 29 Bala Ave., Bala, Pa. LB **$1,737,941.** (3 bidders) wid'n. 22,783 ft. existing road with plain c. conc. bit. surf., Upper Darby, Nether Providence and Springfield Twps., Media, Morton, Swarthmore and Clifton Heights Boros, T.R. U. S. 1, Delaware Co.;
Pa.—**Tri-County Constructors,** 2920 Mt. Carmel Ave., North Hills, Pa. LB **$869,965.** (3 bidders) constr. 19,-392 ft. crushed aggregate base with bit. surf. 1 prestressed precast rein.-con. bridge, Durham, Solebury, Plumstead and Nockamixon Twps., Riegelsville Boro, T.R. 32-611, Bucks Co.;
Pa.—**S. T. Brotemarkle Constr. Co.,** Box 393, Cumberland, Md. LB **$441,939.** (3 bidders) wid'n. 29,347 ft. existing road with crushed aggregate base, with bit. surf. 22 ft. wide, 1 rein.-con. bridge, Cumberland Valley Twp., T.R. U. S. 220, Bedford Co.;
Pa.—**Edward A. Daylor Co., Inc.,** Box 551, Coatesville, Pa. LB **$591,134.** (10 bidders) constr. 21,016 ft. crushed aggregate base with bit. surf., 1 prestressed precast rein.-con. deck bridge, South Whitehall, North Whitehall Twps., T.R. 29, Lehigh Co.; LB **$454,331.** (5 bidders) constr. 6,825 ft. crushed aggregate base with bit. surf. 22 ft. wide, 1 plate girder bridge, Conestoga and Manor Twps., Millersville Boro, L.R. 36008 (3), Lancaster Co.;
Pa.—**Blue Mountain Constr. Co.,** Grantville, Pa. LB **$143,500.** (5 bidders) constr. 1,228 ft. crushed aggregate base with bit. surf. 22 ft. wide 1 prestressed precast rein.-con. bridge, Kidder and Tobyhanna Twps., T.R. 940, Carbon and Monroe Counties;
Pa.—**Alexander Constr. Co.,** 714 Edgemont Ave., Chester, Pa. LB **$293,384.** (9 bidders) surf. 24,408 ft. existing road with bit. surf. 44 ft. wide, Ridley, Darby, Glenolden, and Collingdale Boros, city of Chester, T.R. U. S. 13 by-pass, Delaware Co. Bids Dec. 20. CD 12/3.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**
PROPOSED WORK	
Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

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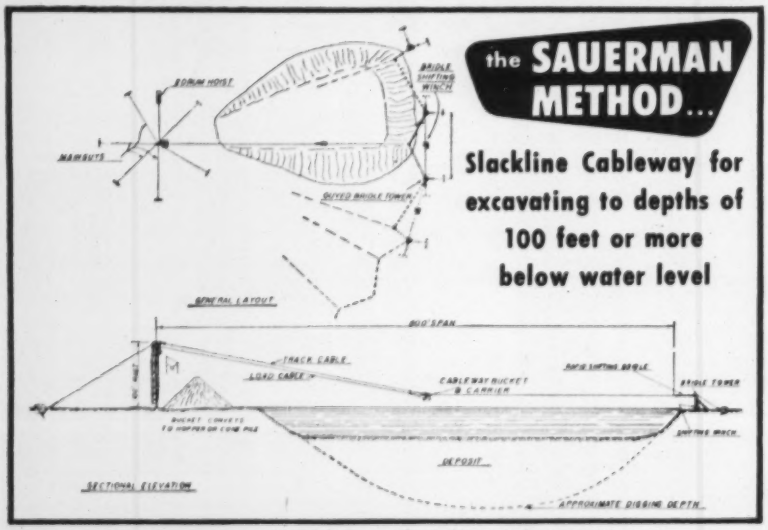

Above drawing was prepared for a specific slackline installation and does not represent maximum spans. Rapid shifting bridle is not needed for many deposits.

Cableway at Cabinet Gorge Dam digs and hauls from tailrace 1000 ft. away. **(Full details in Sauerman News No. 143.)**

New York gravel producer switched to cableway for underwater operation of his pit. Average haul is 600 ft. from a 50-ft. depth **(Sauerman News No. 141).**

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John Matricciani, Inc., 408 S. Caroline St., Baltimore 30, Md. LB $227,506. (5 bidders) Contr. 556-S, Red House Run Sewage Force Main, TOWSON, MD. Comrs. Baltimore Co., County Office Bldg., Towson, Md. Bids Dec. 13. CD 12/3.

▲ Gunnell Constr. Co., Tower Bldg., Wash., D. C., CA $1,327,000. (8 bidders), constr. sewer in Square 635 at site of proposed office bldg. for House of Representatives, WASH., D. C. Office of the Architect of the Capitol, U. S. Capitol, Wash., D. C. Bids Dec. 12. CD 12/17, under LB.

BUILDINGS—LB & CA

▲ Suburban Park Homes, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,000,000. 55 HOUSES on tract at Plainview Rd. south of Old Country Rd., BETHPAGE, N. Y.

Sunrise Estates, c/o Henry C. Albrecht, Inc., North Middletown Rd., New City, N. Y. Owner Builds. $400,000. 25 HOUSES on tract at Ludvigh Rd. near Rte. 304, NANUET, N. Y.

▲ Forsythe Plumbing & Heating Corp., 234 W. 55 St., New York 19, N. Y. CA $523,455 (9 bidders) plumbing work for FASHION INSTITUTE OF TECHNOLOGY, West 27 and 28 Sts., between 7th and 8th Aves., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 11/21, under LB.
Dierks Heating Co., Inc., 43-32 33 St., Long Island City, N. Y. CA $668,275 (6 bidders) heating work (New York, N. Y.).

Park Lake Homes, c/o Butterly & Green, Inc., 168-25 Hillside Ave., Jamaica, N. Y. Owner Builds. $360,000. 30 HOUSES on tract at Grand Blvd. and W. 182 St., NORTH BABYLON, N. Y.

Park Hills Homes, c/o Harry Klein, Realty Co., 26 W. Jericho Turnpike, Huntington Station, N. Y. Owner Builds. $350,000. 35 HOUSES on tract on Jericho Turnpike, PARK HILLS, N. Y.

▲ Kent Knolls Homes, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,000,000. 64 HOUSES on tract at Plainview Rd., PLAINVIEW, N. Y.

Pine Ridge Homes, c/o Seymour Orlofsky, 199 Main St., White Plains, N. Y. Owner Builds. $344,000. 20 HOUSES on tract on Lincoln Ave. near Hutchinson River Parkway, RYE, N. Y.

Robert Schmertz, 620 Ninth Ave., Lakewood, N. J. Owner Builds. $900,000. 56 HOUSE DEVELOPMENT, County Line Rd. known as Pine Park, LAKEWOOD, N. J. C. Paul West, Rte. 9, Toms River, N. J., archt.

Zephyr Constr. Co., Inc., 74-12 New Utrecht Ave., Brooklyn, N. Y., CA $787,600. (5 bidders) Contr. PN-380.002, Building No. 173 (BOTTLING PLANT) paving and utilities at west side of Export St., PORT NEWARK, N. J. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Nov. 27. CD 11/29, under LB.

Francis R. Melehan Constr. Co., Inc., 600 Voorhees Ave., Closter, N. J. Owner Builds. $500,000. 20 HOUSE DEVELOPMENT, Paramus Rd., PARAMUS, N. J. Peter Butler, 172 N. State St., West Englewood, N. J., archt.

William F. Sutter, Schley St., Nescopeck, Pa. CA $768,210. general constr. JUNIOR-SENIOR SCHOOL, for Blue Ridge Joint School Bd., GREAT BEND, PA. State Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. CD 11/13, under LB.

Bellmore Constr. Co., Inc., 10 E. Fayette St., Baltimore 2, Md. Owner Builds. $468,000. 52 brick HOUSES Carmel Circle, Coronado Rd. and Washington Ave., BALTIMORE, MD.

Jack Meyerhoff & Sons, Sun Life Bldg., Baltimore 1, Md. Owner Builds. $354,000. 36 brick DWELLINGS, Inverness Ave., Yorkmoor, near TOWSON, MD.

▲ Stanford Constr. Co., 6900 Sheriff Rd. N.E., Washington, CA $1,200,000. 126 unit 8 story concrete, masonry APARTMENT, 940 25th St. N.W., WASH., D. C. John H. Safer, 2500 K St. N.W., Wash., D. C. Corning & Moore, 1302 18th St. N.W., Wash., D. C., archts.

Cladney M. Constr. Co., 635 F St. N.W., Wash., D. C., CA $500,000. constr. OFFICE, SHOP, WAREHOUSE and PARKING GARAGE, 2323 4th St., WASH., D. C. Estate of Rebecca Lipscomb, c/o American Security & Trust Co., 15th and Pa. Ave. N.W., Wash., D. C. May & Ruppert, 1223 Conn. Ave. N.W., Wash., D. C., archts. Benjamin E. Freund, 2017 5th St. N.E., Wash., D. C., consult. engr. CD 10/12, under LB.

▲ D. M. Fontana Constr. Co., 112 A St., Wilmington, Del. CA $2,439,800. Mt. Pleasant SENIOR HIGH SCHOOL, on 25 acre plot on north side of Washington St. Extension, east of Marsh Rd., near WILMINGTON, DEL. Mount Pleasant Special School Dist., Duncan Rd. and Phila. Pike, Wilmington, Del. Bids Dec. 12. CD 12/14, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

N. C., Jacksonville—OFF SITE UTILITIES—BA 1/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., off-site utilities, Capehart Family Housing, Marine Corps Air Facility, New River, NBy 3590, Spec. 3590/56. Plans deposit $40.

† Va., Quantico—BA 1/16—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. roadway, parking area imprvs., U. S.

(Continued on page 84)

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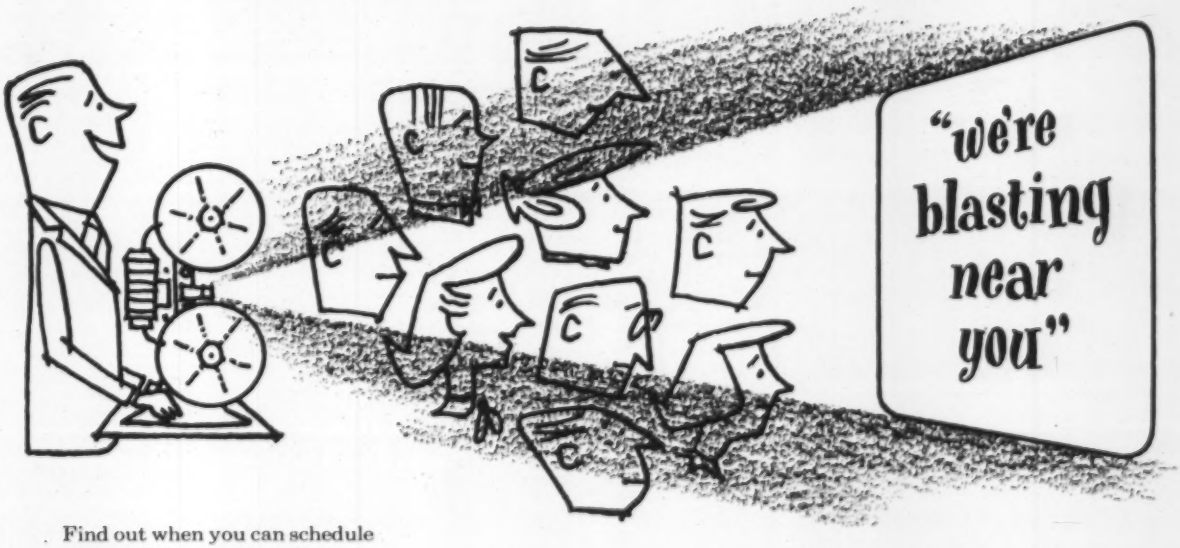

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(Continued from page 82)

Naval Hospital, NBy 8323. Plans deposit $25. CE 8/28, under Public Buildings.

† **S. C., Charleston**—PIER ALTERATIONS—BA 1/17—Dist. P. Wks. Office, Bldg. 13, U. S. Naval Base, alterations to piers, U. S. Naval Industrial Reserve Shipyard, NBy 5677, Spec. 5677/56. Plans deposit $10. CD 6/25/52.

† **Kentucky**—BA 1/22—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., local protection proj., Catlettsburg, Sec. 2 and pump stations, CIVENG-46-022-57-31. Extended date. CD 11/29.

† **N. C., Cherry Point**—POLLUTION ABATEMENT—BA 1/22—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., pollution abatement, incl. 2 story bldg. and concrete waste holding tank, Marine Corps Air Station, NOy 91391, Spec. 48397. Plans deposit $25.

† **N. C., Camp Lejeune**—STEAM CONDENSATE MAINS BA 1/24—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base Norfolk 11, Va., rehabilitation of steam and condensate mains, Fourth Regimental Area, 9th Increment, Marine Corps Base, NBy 3745, Spec. 3745/56. Plans deposit $15.

† **N. C., Camp Lejeune**—REPLACE CABLE—BA 1/24—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., replace buried lead sheath cable, Marine Corps Base, NBy 3744, Spec. 3744/56. Plans deposit $10.

BUILDINGS—BA

† **Ky., Fort Knox**—QUARTERS—BA 1/29—U. S. Eng., P. O. Box 59, Louisville, field grade officer's quarters, ENG.-15-029-57-38. CD 8/18/55.

† **Ky., Lexington**—NUCLEONICS—BA 1/31—U. S. Eng., P. O. Box 59, Louisville, Zone 1, nucleonics bldg., Lexington Signal Depot, ENG.-15-029-57-42, $200,000. CD 8/19/55.

HEAVY CONSTRUCTION—LB & CA

† **U. S. Eng.**, foot of Front St., Norfolk 1, Va., rejected bids Dec. 6, stadium, ENG-44-110-57-11, FORT LEE, VA. LB **$109,573.** CD 12/11, under LB.

† **Ames & Webb, Inc.**, 3145 Broad Creek Rd., Norfolk, Va. LB **$452,621** (3 bidders) replace concrete pavement, Naval Air Station, NBy 7654, Spec. 7654/56, NORFOLK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Dec. 20. CD 11/27.

† **Southside Plumbing Co.**, Box 221, Farmville, Va., LB **$112,700** (4 bidders) replace condensate lines, U. S. Marine Corps Air Station, NBy 7677, Spec. 7677/56. CHERRY POINT, N. C. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Dec. 20. CD 11/27.

† **Banks Constr. Co.**, Box 4426, Charleston Heights, S. C. LB **$408,153**, secondary roads and storage areas, Myrtle Beach Air Force Base, No. 38-081-57-16. MYRTLE BEACH, S. C. U. S. Eng., 31 Customhouse, Charleston, S. C. Bids Dec. 20. CD 11/28.

† **Eastern Contractors**, 1517 Heatherwood Rd., Columbia, S. C. LB **$249,818**, officers quarters, Myrtle Beach Air Force Base, No. 38-081-57-12, MYRTLE BEACH, S. C. U. S. Eng., 31 Customhouse, Charleston, S. C. Bids Dec. 13. CD 11/21.

▲ **GEORGIA**—State Hy. Dpt. 2 Capitol Square, Atlanta, **W. L. Robinson Constr. Co.**, 1224 W. Rugby Ave., College Park, Ga. CA **$1,451,868.** (12 bidders) interchange and bypass 3.17 mi. 4-lane limited access paving with 3 grade separation structures and service roads Proj. 1-401-2 (1) Monroe Co. CD 12/21, under LB.

† **L & A Contr. Co.**, Box 829 Hattiesburg, Miss., LB **$468,218**, Spillway Structures 11a, B & C of Structure 11, Central & Southern Fla. Flood Control Proj., CIVENG-08-123-57-34, FLORIDA. U. S. Eng. Box 4970, Jacksonville, Fla. Bids on or about Dec. 20. CD 11/27.

John L. Sullivan, city mgr., City Hall, Clearwater, Fla., cancelled bids to have been opened Dec. 10, Marshall Street Sewerage Treatment Plant, CLEARWATER, FLA. CD 11/14.

† **F. Hilbert Sapp**, 1905 N. Orange Ave., Orlando, Fla. LB, **$539,485**. Officers club, Homestead Air Force Base, ENG-08-123-57-22, HOMESTEAD AIR FORCE BASE, FLA. U. S. Eng., Box 4970, Jacksonville, Fla. Bids Dec. 21. CD 12/4.

† **Greenhut Constr. Co.**, 23 S. A St., Pensacola, Fla. CA. **$343,846**, est. $365,208 (4 bidders) air defense system, Tyndall Air Force Base, PANAMA CITY, FLA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Dec. 20. CD 12/11.

▲† **Hardaway Contg. Co.**, 15 E. 11 St., Columbus, Ga. CA. **$5,505,700.** constr. 692 ft. concrete gated spillway in channel of Chattahoochee River between Alabama and Georgia of the Ft. Gaines lock and dam sys. ALABAMA AND GEORGIA, U. S. Eng. 2301 Grant St., Mobile 7, Ala. Bids Dec. 18. CD 12/21, under LB.

† **N. C. Morgan Constr. Co.**, P. O. Box 312, Tuscaloosa, Ala. CA. **$879,626.** aircraft control and warning system at Crystal Springs, ENG.-01-076-57-17, CRYSTAL SPRINGS, MISS. U. S. Eng., P. O. Box 1169, Mobile, Ala. CD 11/12, under LB.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge

La.—**Walden & Williams**, Box 738, Mansfield, La. LB **$189,810.** Calcasieu-Alexandria Hy., Rte. No. LA 488, S. P. 368-02-04, Forest Hy. Proj. FH 38-C, Rapides Parish;

La.—**R. T. Henry**, Dubach, La. LB **$201,741.** Alto-Rayville Hy., Rte. LA 135, S. P. 167-04-07, Richland Parish;

(Continued on page 86)

No "Cure-All," but...

Salinas, California, finds a single grade of Bitumuls® solves five paving maintenance problems

HERE'S A SITUATION common to most growing cities: annexation of outlying residential developments has vastly expanded the street maintenance job *without* materially increasing available funds. Annexation has not only added to the street mileage, but has "contributed" many sub-standard pavements to the street system, thus adding to the complexity of the job.

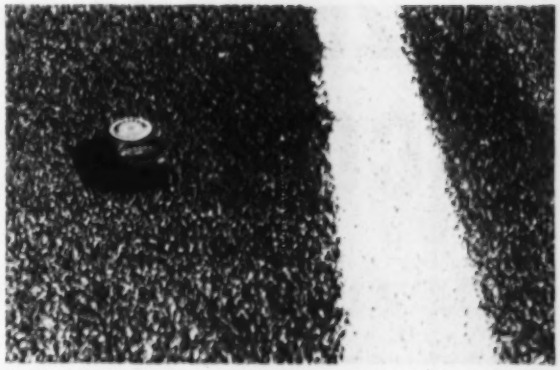
In an effort to solve this problem, these three Salinas men most directly concerned have worked together: Thomas A. Dunne, Director of Public Service; his assistant, Al Rossi; and Harry Adams, Maintenance Supt. Their search for simplicity and standardization led them to look for a versatile asphalt material that would do many jobs. They found it in Bitumuls SS-1, an asphalt emulsion that can be handled and used without heating, in small quantities or large.

Now, stored in a single 25,000-gallon tank, Bitumuls SS-1 is used for: Patching, Tack Coats, Prime, Seal Coats & Surface Treatments, and for Base Stabilization. In addition, Salinas City Forces can also use this same grade of Bitumuls for the new Slurry Sealing; and—at high dilution – for dust-laying on unpaved, outlying roads. All of these jobs can be done with existing equipment: a grader, a "Pulvimixer", a water wagon, two distributors, and a roller.

The obvious economies resulting from the use of this one material for all these jobs merit investigation by paving maintenance men everywhere, regardless of the size of their community.

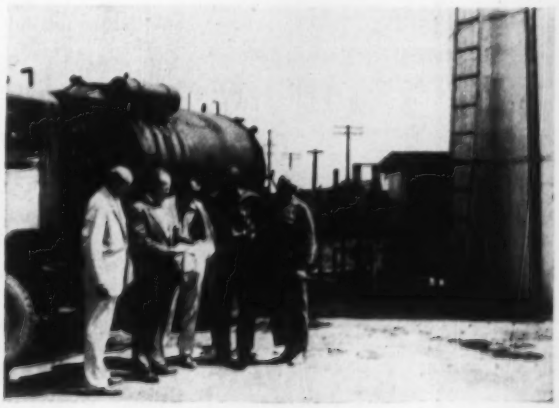
There's a Bitumuls man near you who can supply details. *Call him, today, or write:* **American Bitumuls & Asphalt Co., 200 Bush St., San Francisco 20, Calif.**

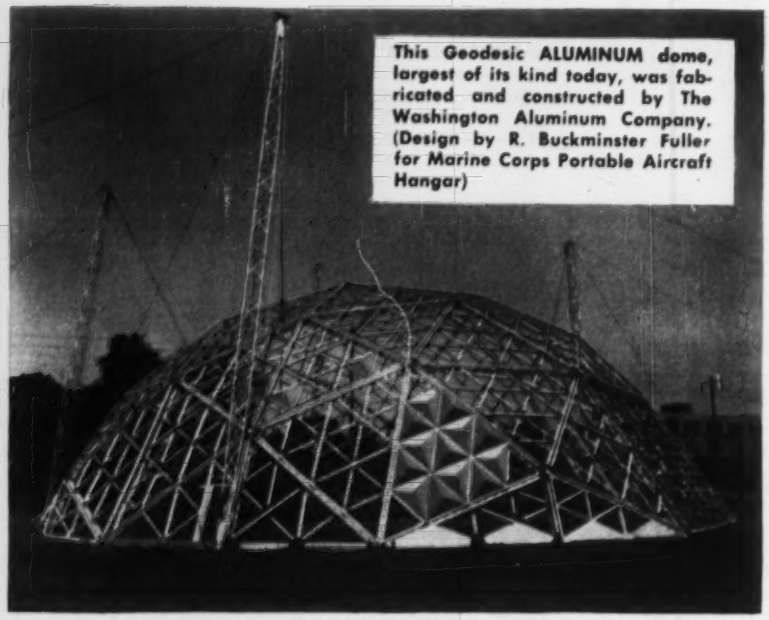
See You at the Road Show, Chicago, Jan. 28-Feb. 2
Booths 23-24; Materials & Supplies Section



(Top), "PULVIMIXER" reworks old pavement that has been scarified and bladed in restabilization operation. Distributor applies Bitumuls at ¾ gal./sq. yd. per inch of depth. (Center), DISTRIBUTOR applies prime on a waterbound base, using Bitumuls SS-1 diluted (2 parts SS-1 to 1 part water) at 0.3 gal./sq. yd. of dilution. (Bottom), HERE'S A CLOSE-UP of the finished texture of a Bitumuls SS-1 Seal Coat pavement.

(Right), SALES ENGINEER Bob Ridell, far left, of American Bitumuls & Asphalt Co., discusses plans with Tom Dunne, Director of Public Service for Salinas, and his assistants. At far right is a partial view of the 25,000 gal. storage tank. (Below), EVEN SCHOOL YARDS are given stabilized bases with Bitumuls SS-1.





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(Continued from page 84)

La.—**Clyde Brown**, Box 653, Minden, La. LB $111,502. Blackburn-Haynesville Hy., Rte. LA 159, S. P. 290-01-6, Claiborne Parish;

La.—**Coastal Contractors, Inc.**, Box 911, Baton Rouge, La. LB $234,912. Abbeville-Leroy Hy., Rte. LA 343, S. P. 293-01-03, Vermillion Parish;

La.—**Richard Coco**, Marksville, La. LB $86,040. Foster Rd., Rte. LA 423, S. P. 817-07-02, East Baton Rouge Parish. Bids Dec. 19. CD 12/12.

† **Jahncke Service**, 814 Howard Ave., New Orleans, La. CA $729,996. hydraulic work consisting of 1,475,000 cu. yd., Iberia and St. Martins Parishes, Inv. 57-120, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Dec. 4, awarded Dec. 14. CD 12/10, under LB.

BUILDINGS—LB & CA

R. R. Richardson & Co., 25 St. and Newport Ave., Norfolk, Va., LB $513,106. PACKING PLANT, NORFOLK, VA. Perlin Packing Co. Inc., 435 E. Indian River Rd., Norfolk, Va. CD 9/25, under LB.

C. L. Lewis Co., Inc., P. O. Box 760, Lynchburg, Va., LB $672,000, womens DORMITORY, WILLIAMSBURG, VA. College of William & Mary, Williamsburg, Va., J. Binford Walford-O. Pendleton Wright, 103 E. Cary St., Richmond, Va., archts., CD 9/24/53.

Jarvis-Courtney Corp., Clarksburg, W. Va. CA. $646,000. Tennerton HIGH SCHOOL addns., BUCKHANNON, W. VA. Upshur County Bd. Educ., Buckhannon, W. Va. Bids Nov. 30. CD 11/20.

▲ **Terrence J. Murrell**, 819 Progresso Dr., Fort Lauderdale, Fla. Owner Builds, $2,000,000. CO-OP APARTMENT, 90 units, 10 story, 346x56 ft. CB-S, Cabana 1 story 20x150 ft. CB-S concrete pile Sea Tower, 2840 North Ocean Blvd., FORT LAUDERDALE, FLA. Polevitzy, Johnson & Assoc., 250 N.E. 18 St., Miami, Fla., archts. J. E. Curley & Assoc., 434 Plaza Bldg., Miami, Fla., mech. engrs., H. J. Ross Assocs., 3047 Biscayne Blvd., Miami, Fla., struc. engrs.

Clutter Constr. Corp., 377 Westward Dr., Miami Springs, Fla., CA. $356,000. Leisure City Elementary SCHOOL, MIAMI FLA. Dade County Bd. Pub. Instruction, 275 N. E. 2 St., Miami, Fla. Bids Dec. 5. CD 11/23.

▲ **G. L. Christian & Associates**, 5223 Hancock St., Houston, Tex. CA. $32,955,724. construct and finance 2,000 HOUSING units, (Capehart), Inv. 57-8, FORT POLK, LA. U. S. Eng., Box 1229, Galveston, Tex. Bids Nov. 16, awarded Dec. 17. CD 11/21, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **ILLINOIS**—BA 1/17—State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Zone 6,

Winnebago Co.—Contr. N-3A grading, drainage, paving 4.03 mi. beginning Station 400 to Station 613 also precast concrete and structural bridges near Belvidere. $4,500,000, Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. 2 St., Harrisburg, Pa., engr.

Contr. N-1C, grading, drainage, paving 3.07 mi. beginning at Station 745 ext. to Station 906 plus, also concrete bridges and steel beam stringer bridge, W. of Rockford, $3,500,000, Vogt, Ivers, Seaman & Assn. 20 N. Wacker Dr., Chicago, engrs. CD 5/11.

Wis., Menomonie—BA 2/4—City, City Hall, enlarge sewage treatment plant, $250,000. Plans deposit $20. Davy Eng. Co., 524 Main St., La Crosse, engr.

BUILDINGS—BA

Mich., Inkster—SCHOOL—BA 1/15—Bd. Educ., Cherry Hill School Dist., Alex Solomon, secy, 27100 Avondale Ave., Fred C. Fischer Elementary School addn. Plans deposit $50 refundable. Extended date, Bennett & Straight, Inc., 15624 Michigan Ave., Dearborn, archt. CD 11/21.

Mich., Inkster—SCHOOL—BA 1/15—Bd. Educ., Cherry Hill School Dist., 27100 Avondale St., Inkster, Willis R. Harrison Elementary School addn., Hiveley Ave. Plans deposit $50 refundable. Extended date, Bennett & Straight, Inc., 15624 Michigan Ave., Dearborn, archt. CD 11/20.

▲ **Ill., Chicago**—ADMINISTRATION—BA 1/16—Art Institute of Chicago, S. Michigan and E. Adams St., 3 story administration bldg. addn. and Blackstone Hall, $1,700,000. Holabird, Root & Burgee, 180 N. Wabash Ave., archts. CD 4/10.

▲ **Ill., Chicago**—ABBOTT HALL—BA 1/22—Northwestern University, 619 N. Clark St., Evanston, 19 story Abbott Hall addn., 710 North Lake Shore Dr. $2,000,000. Holabird, Root & Burgee, 180 N. Wabash Ave., archts. CD 5/28.

Wis., Racine—LIBRARY—BA 2/5—Library Bd., 701 Main St., 1 story, steel, concrete, brick, stone, tile library, $800,000. Plans deposit $40. Al J Sertz, 216 5th St., engr. CD 9/26.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Dpt. Hys., Columbus, Zone 15, rejected bids Dec. 11, Type T-35, 5.317 mi. SR 125, Section 0.00, F-151 (2), Clermont and Hamilton Counties LB $1,610,022; Type T-35, 1.137 mi. SR 82, Sect. 6.13, F-444 (5), Summit Co., LB $198,521; CD 12/18, under LB.

▲ **OHIO**—Dpt. Hys., Columbus, Zone 15, O.—**V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., CA $682,613. est. $770,700, Type T-71 and structures 5.655 mi. USR 25, S cts. (0.00) (4.45), 13.29, I-963 (4), Allen and Auglaize Counties. CA $4,464,560, est. $5,032,000, Type T-71

and structures, 11.212 mi. USR 25, Sect. 5.05, I-196 (5), Allen and Auglaize Counties;

O.—**The Fischer Constr. Co.**, 4053 Clifton Ave., Cincinnati, O., CA **$3,104,243**, est. $3,262,000. Type T-71 and structures, 6.447 mi. USR 40, Sect. 11.07, I-1097 (3), Montgomery Co.;

O.—**H. H. Miller & Son**, R. D. 1, New Milford, O., CA **$793,438**, est. $1,016,000 Type T-71 and structure 4.084 mi. USR 224, Sect. 6.22, F-330 (3), Portage Co.;

O.—**L. P. Cavett Co.**, 511 Shepherd Ave., Lockland, O., CA **$627,145**, est. $658,000, Type T-35, 5.941 mi. USR 52, Sects. (7.84-13.29), Adams Co.;

O.—**The Frysinger Constr. Co.**, 3770 N. High St., Columbus, O., CA **$685,532**, est. $786,700, Type T-35 and structures 5.861 mi. USR 42, Sects. (4.43-6.28), Clark and Madison Counties;

O.—**C. E. Edgington & Son**, 913 S. Main St., Findlay, O. CA **$599,844**, est. $693,700. Type T-35 on B-119 and structures 1.786 mi. USR 305, Sections 0.00, 28.90, (2.02-2.29), (3.48) (6.71), Crawford, Marion and Morrow Counties;

O.—**W. L. Johnson Constr. Co. & Assocs.**, P. O. Box 6668 Bexley Station, Columbus, O., CA **$4,992,796**, est. $5,417,700, Type T-71 and structures 5.295 mi. SR 4, Sects. 0.00, 20.50, Greene and Montgomery Counties;

O.—**S. E. Johnson Co.**, P. O. Box 29, Maumee, O., CA **$816,526**, est. $913,200, Type T-35, 9.877 mi. USR 24, Sections (0.00-9.51), Henry and Lucas Counties. Grand total $16,766,697. Bids Dec. 11. CD 12/18, under LB.

C. A. Agresta Constr. Co., 4186 Greenvale Rd., Cleveland 21, O. LB **$103,354**, est. $109,700 (5 bidders) imprvt. Shaker Blvd. at Brainard Rd. by grading, draining, paving, completing traffic circle, Pepper Pike, CLEVELAND, O. Comrs. Cuyahoga Co., Court House, Cleveland 13, O. Bids Dec. 20. CD 12/7.

▲ **Morris Prosser, Inc.**, Franklin, Ind. CA **$1,297,895**. sanitary sewer Eagledale area northwest side of INDIANAPOLIS, IND. Bd. Sanitary Comrs. C. Drayer chn., City Hall, Indianapolis, Ind. CD 8/4/54.

▲ **ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago,

Ill.—**H. H. Mass Constr. Co.**, Algonquin, Ill.; **McCarthy Improvement Co.**, 602 Kahl Bldg., Davenport, Iowa and **Dillon Stone Co.**, Columbus Junction, Iowa (jointly) LB **$3,299,752**. (9 bidders) Contr. N-4B, grading, drainage, paving, with appurtenances, precast concrete bridges 5.45 mi., McHenry and Kane Counties;

Ill.—**Arcole Midwest Corp.**, 3225 Main St., Skokie, Ill. LB **$1,399,808**. (10 bidders) Contr. N-5A, grading, drainage, paving with appurtenances, precast concrete girder bridge over Fox River, Kane Co.;

Ill.—**Chain Link Fence Corp.**, 4301 W. 69 St., Chicago, Ill. and **Chicago Fence & Equipment Co.**, 4400 W. Addison St., Chicago, Ill. (jointly), LB **$1,397,615**. (3 bidders) furnishing, erecting permanent fencing, approx 564,300 lin. ft. chain link fence for use in urban areas, Bids Dec. 20. CD 12/5.

ILLINOIS—State Div. Hys., Springfield, rejected bids Nov. 20, imprv. FAS 782 in Clinton Co. LB **$204,209**. CD 11/26, under LB.

H. H. Mass Constr. Co., Chicago St., Algonquin, Ill. LB **$145,257**, bridge, Indiana St. across Fox River, ST. CHARLES, ILL. City, City Hall, St. Charles. Bids Oct. 15. CD 10/1.

▲ **Wm. E. Schweitzer & Co.**, 2207 Dodge Ave., Evanston, Ill. LB **$1,561,386**. Clavey Rd. sewage treatment plant, Clavey Rd. and County Line Rd., near Deerfield, WAUKEGAN, ILL. North Shore Sanitary Dist., Dahringer Rd., Waukegan, Ill. Bids Dec. 13. CD 11/20.

MICHIGAN—State Hy. Dpt., Purch. Director, 107 Lewis Cass Bldg., Lansing,

Bethlehem Steel Co., Bethlehem, Pa. LB **$113,680**. bridge, Saginaw Co. Bids Dec. 5. CD 11/21.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Loselle Constr. Co., 15351 Goddard St., Wyandotte, Mich. CA **$528,807**. dual c. conc. 1.156 mi. relocation of US-23 from Arlene Dr. north to Beecher Rd., BI 25033-C1-RO (SP 25-53), etc., Genesee Co. CD 11/28, under LB.

Matthew Lalewicz, Inc., 3623 Caniff St., Detroit 12, Mich. CA Est. **$340,000**. incinerator plant, HAMTRAMCK, MICH. City, 3201 Roosevelt St., Hamtramck, Mich. Bids Dec. 4. CD 11/20.

BUILDINGS—LB & CA

R. S. Ursprung Co., Hanna Bldg., Cleveland 15, O. LB **$505,700**. general constr. HOSPITAL addns., alterations, BEREA, O. Berea Community Hospital, Front St. and Bagley Rd., Berea, O. Bids Dec. 18. CD 11/28.

Steinle-Wolf, Inc., 128 N. Jefferson St., Fremont, O. CA **$684,341**, est. $650,000. 30-bed HOSPITAL addn., PORT CLINTON, O. Magruder Memorial Hospital, Port Clinton, O. Bids Dec. 11, awarded Dec. 18. CD 12/19, under LB.

A. R. Abrams Inc., 362 Jones Ave. N.W., Atlanta, Ga. CA **$500,000**. brick, concrete slab, retail store, NEW ALBANY, IND. Doerhoffer Estate, c/o Nevin Morgan, archt., Starks Bldg. CD 10/11.

▲ **Black & Anderson Constr. Co.**, 428 N. Michigan Ave., South Bend, Ind. LB **$1,024,051**. South Side ELEMENTARY and JUNIOR HIGH SCHOOL, 1600 and 1700 S. Main St., MISHAWAKA, IND. School City of Mishawaka, 126 N. Church St., Mishawaka, Ind. Bids Dec. 13. CD 11/13.

H. G. Christman, 850 Fellows St., South Bend, Ind. LB **$555,377**. John Marshall SCHOOL-Broadmoor

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Addn., Byron Dr., SOUTH BEND, IND. School City of South Bend, 228 S. St. Joseph St., South Bend, Ind. Bids Dec. 17. CD 11/27.

▲ **Leo Michuda & Son,** 514 E. 95th St., Chicago, Ill. LB $1,142,107. 2 story Mary McLeod Bethune Elementary SCHOOL addn., 4401 S. St. Lawrence Ave., CHICAGO, ILL. Chicago Bd. Educ., 228 N. LaSalle St., Chicago, Ill. Bids Dec. 14. CD 11/28.

J. Emil Anderson & Son, 1809 W. Balmoral Ave., Chicago, Ill. CA $670,000. 1 story, brick, steel, concrete FACTORY and OFFICES, 6350 Kirk St., MORTON GROVE, ILL. Kraft Foods, 500 Peshtigo St., Chicago, Ill.

Wm. E. Schweitzer & Co., 2207 Dodge Ave., Evanston, Ill. CA $800,000. 1 story, 80,000 sq. ft. FACTORY, NILES, ILL. Crescent Industries, Inc., 5900 W. Touhy Ave., Niles, Ill. Friedman, Alschuler & Sincere, 223 W. Jackson Blvd., Chicago, Ill., archts.

The Cook Co., 228 N. LaSalle St., Chicago, Ill. CA $200,000. 18,000 sq. ft. FACTORY, Suffield Ter. and Terminal Ave., SKOKIE, ILL. Carrier Corp., 4217 Main St., Skokie, Ill. W. Fred Dolke, 179 W. Madison St., Chicago, Ill., archt.

Seizer-Ornst Co., 6222 W. State St., Wauwatosa, Wis. CA Est. $500,000. 8 story, rein.-con. FACTORY addn., MILWAUKEE, WIS. Allen Bradley Co., 136 W. Greenfield Ave., Milwaukee, Wis., Scott, Kloppenburg & Scott, 5623 N. Lake Dr., Milwaukee, Wis., engrs.

E. C. Knuth & Co., 2919 W. Fond du Lac Ave., Milwaukee, Wis. CA Est. $400,000. 5 story, 47x117 ft. APARTMENT, MILWAUKEE, WIS. Rehls Corp., 4156 N. Stowell Ave., Milwaukee, Wis. CD 10/18.

▲ **Siesel Constr. Co.,** 514 E. Ogden Ave., Milwaukee, Wis. LB $2,677,000. (5 bidders) general constr.; LB $835,747. (5 bidders) interior finishing work for MUNICIPAL BLDG. and GARAGE, MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Dec. 21. CD 11/1.
Zien Plumbing & Heating Co., 4450 N. Oakland Ave., Milwaukee, Wis. LB $386,965. (6 bidders) heating and piping for air-conditioning (Milwaukee, Wis.);
Magaw Electric Co., 728 N. Jefferson St.,Milwaukee 2, Wis. LB $991,510. (3 bidders) electrical work (Milwaukee, Wis.);
Downey Heating Co., 1739 W. St. Paul Ave., Milwaukee, Wis. LB $406,850. (4 bidders) ventilating and sheet metal work (Milwaukee, Wis.).

Home Labor & Imprvt. Co., 2947 University Ave., Madison, Wis. LB $398,000. general contract HOSPITAL addn., STOUGHTON, WIS. Stoughton Hospital Assn., Stoughton, Wis. Bids Dec. 18. CD 11/23.

▲ **Barton-Malow Co.,** 2631 Woodward Ave., Detroit 26, Mich. CA $1,516,069. HIGH SCHOOL, DETROIT, MICH. Detroit Lutheran High School Development, 5040 Joy St., Detroit, Mich. Bids Nov. 30. CD 11/20.

▲ **C. R. Meyer & Sons Co.,** 50 Star St., Oshkosh, Wis. CA $528,687. general constr. municipal POWER PLANT, ESCANABA, MICH. City, City Council, Escanaba, Mich Black and Veatch, 4706 Broadway, Kansas City, Mo., archts. Grand total $1,267,545. CD 3/21/56.
Industrial Heating & Plumbing Co., 1701 S. 8 St., St. Joseph, Mo. CA $598,343. mechanical work (Escanaba, Mich.);
Cloverland Contg. Co., Crystal Falls, Mich. CA $140,515. electrical work (Escanaba, Mich.).

J. C. Nielsen Co., 1209 Morse St., Royal Oak, Mich. LB $389,000. general constr. Kendall Elementary SCHOOL, FARMINGTON, MICH. Bd. Educ., Farmington School Dist., Farmington, Mich. Bids Dec. 10. CD 11/30.

Lerner-Linden Constr. Co., 21701 Republic St., Oak Park, Mich. LB $385,289. general constr. Bentley HIGH SCHOOL, LIVONIA, MICH. Bd. Educ., Livonia Pub. Schools, Claude Snarey, secy., Livonia, Mich. Bids Dec. 11. CD 11/21, under Unclassified.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Okla., Altus**—OPEN MESS—BA 1/16—U. S. Eng., Box 61, Tulsa, Zone 2, N. C. O. open mess addn., allied facilities, utilities underground, Altus Air Force Base, ENG-34-066-57-18. $350,000. Extended date. CD 11/27.

† **Colo., Colorado Springs**—DINING HALL—BA 1/17—Dpt. Air Force, Box 1670, Colorado Springs, 308x308 ft. cadet dining hall, Air Force Academy, IFB 05-613-57-10. $126,000. Skidmore, Owings & Merrill, 333 N. El Paso Rd., Colorado Springs, engrs.-archts. CD 10/31.

† **Mont., Glasgow**—AMMO STORAGE FACILITIES—BA 1/30—U. S. Eng., City-County Airport, Walla Walla, Wash., addnl. ammo storage facilities at Air Force Base, ENG-57-18. Plans deposit $100. CD 2/6.

BUILDINGS—BA

Tex., Austin — LABORATORY — BA 1/17 — State Hy. Dpt., Austin, Proj. No. MC-CH-6, materials and test laboratory bldg., Camp R. M. Hubbard. $460,000. Jessen, Jessen, Millhouse & Greeven, 2618 Hemphill Park, archts. Clark Craig, Perry-Brooks Bldg., and Blum & Guerrero & Lagow, 1111 Neches St., engrs. CD 8/13.

Tex., Sweeny—HIGH SCHOOL—BA 1/17—Sweeny Independent School Dist., Sweeny, high school. $780,000. Plans deposit $30. Extended date. Caudill, Rowlett, Scott & Assocs., 425 S. Main St., Bryan, archts. J. W. Hall, Bryan, engr. CD 12/20.

Mo., Hazelwood (St. Louis 21 P. O.)—SCHOOL—BA 1/18—School Dist. of Hazelwood R-1, St. Louis Co., Clifford Kirby, supt. Schools, 1865 Hy. 66, St. Louis County, Twilmann School addn., 11831 Bellefontaine Rd., Lusher School addn. on Mullanphy Lane. $350,000. Kenneth E. Wischmeyer, 911 Locust St., St. Louis, Zone 1, archt. CD 2/13/56.

▲ **Tex., Austin**—STATE OFFICE—BA 1/22—State of Texas, State Bldg. Comn., Admin. Bldg., state offices bldg. $3,000,000. Extended date. Kuehne, Brooks & Barry, Perry-Brooks Bldg., Austin, Atlee B. & Robert M. Ayres, 342 W. Woodlawn St., San Antonio, Cato & Austin, 2401 LaBranch St., Houston, George L. Dahl, 2101 N. St. Paul St., Dallas, Stone & Pitts, 1872 Calder St., Beaumont, and R. Max Brooks, Perry-Brooks Bldg., Austin, archts. CD 12/20.

Tex., Dallas—SCHOOL—BA 1/22—Dallas Independent School Dist., 3700 Ross St., Wm. B. Travis School, 3001 McKinney Ave. Sam Biderman, 1018 National City Bldg., archt. Sam Biderman, Jr., 1018 Natl. City Bldg., and Zumwalt & Vinther, Merc. Sec. Bldg., engrs. CD 8/14, under LB.

▲ **N. M., Las Cruces**—HOUSING—BA About 2/1—U. S. Eng., P.O. Box 1538, Albuquerque, construct and finance 134 housing units, (Capehart), White Sands Proving Ground, ENG-29-005-57-15. CD 10/5, under LB.

HEAVY CONSTRUCTION—SLC

Kansas and Colorado—TELEPHONE LINES—Pioneer Telephone Assn., Ulysses, soon lets contract 408.2 mi. telephone lines, misc. facilities, Stanton, Grant, Haskell, Hapil and Seward Counties in Kan., and Baca Co., Colo. Raymond H. Reed & Co., Columbus, Neb., engrs. CD 7/17/51.

Tex., San Antonio—American Can Co., 100 Park Ave., New York, N. Y., soon lets contract water sys. $50,000. A. O. Degling, c/o owner, engr.

Tex., San Antonio—American Can Co., 100 Park Ave., New York, N. Y., soon lets contract grounds or site development, grading, leveling. $50,000. A. O. Degling, c/o owner, engr.

Tex., San Antonio—American Can Co., 100 Park Ave., New York, N. Y., soon lets contract area and auto center hard paving. $75,000. A. O. Degling, c/o owner, engr.

BUILDINGS—SLC

▲ **Tex., San Antonio**—PLANT, etc.—American Can Co., 100 Park Ave., New York, N. Y., soon lets contract can mfg. plant, 275 million cans annual capacity, $1,000,000; tin plate storage, $125,000; general warehousing, $100,000. A. O. Degling, c/o owner, engr. CD 10/11.

BUILDINGS—LB & CA

Enterprise Engine & Machy. Co., 18th and Florida Sts., San Francisco, Calif., LB $532,414 (3 bidders) furnish, install a dual-fuel diesel engine generator unit

Civil Defense control center, Portland, Oregon, is 85 feet in span and 140 feet long, with 2-foot thick concrete shell poured over engineered falsework by Timber Structures, Inc. Upper chords are glued laminated members, 5¼"x14⅛" in section, and formed on radius of 45'-6". Architects-Engineers: Edmundson, Kochendoerfer and Kennedy, Portland, Oregon; A. V. Peterson Company of Portland was general contractor.

QUICK, SAFE SUPPORT
for pouring concrete shell buildings

Weight of this massive shell during pouring was 300 p.s.f., supported by falsework of three heavy timber trusses, X-bracing, joists and sheathing.

Falsework was placed on sand jacks and raised into position for pouring. After the concrete hardened, falsework was de-centered and moved intact into position for subsequent pourings. Fewer man-hours were required, and complete safety was maintained at all times.

Other falsework applications by Timber Structures, Inc. include airports at Chicago and St. Louis; the Onondaga War Memorial at Syracuse, N.Y.; bridges from Bar Harbor, Maine to Dunsmuir, California; and hundreds of other large and small projects. The knowledge and experience gained through these applications can make your next falsework job more profitable. See your nearest Timber Structures representative for information, or write us.

TIMBER STRUCTURES, INC.

P.O. Box 3782-C, Portland 8, Oregon

Offices in Ramsey, New Jersey; Rochester, New York; Boston; West Hartford; Cleveland; Charlotte; Chicago; Centerline, Michigan; Kansas City; Kirkwood, Mo.; Minneapolis; Wichita; Des Moines; Memphis; Dallas; Houston; Birmingham; Seattle; Spokane; Denver.

Local Representatives throughout the United States and Canada

TIMBER STRUCTURES, INC. OF CALIFORNIA

Richmond Beverly Hills Sacramento

in municipal power plant, WAVERLY, IOWA. City, R. Hoth, clk., Waverly, Ia. Bids Dec. 17. CD 12/5.

Co-Mo Electric Co-operative, Inc., Jack H. Needy, mgr., Tipton, Mo. Own Forces. $200,000. 108 mi. rural distr. lines, Proj. Mo 47Y Cooper, MISSOURI. CD 12/6.

† **U. S. Eng.,** Box 61, Tulsa 2, Okla., cancelled bids to have been opened Dec. 19, recreational workshop, Altus Air Force Base, ENG-34-066-57-17, ALTUS, OKLA. Est. $150,000. CD 12/13.

† **Standard Industries, Inc.,** 2119 E. 11 St., Tulsa, Okla., CA $674,890, runway extens., Vance Air Base, Inv. ENG-34-066-57-12, ENID, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Nov. 28. CD 12/13, under LB.

TEXAS and LOUISIANA—Comrs. Court Jefferson Co., Court House, Beaumont, Tex. and Police Jury Cameron Parish, Cameron, La.

Louisiana Paving Co., Inc., Box 8, Kenner, La., CA $627,471, Sect. A, Sabine Lake approach spans and center pier; CA $232,750, Sect. B, Sabine Lake swing span. Jefferson Co. Tex. and Cameron Parish, La. Bids Nov. 12. CD 11/20, under LB.

▲† **Atlantic, Gulf & Pacific Co.,** 905 Citizens State Bank Bldg., Houston, Tex., CA $1,013,319, dredging Washburn Tunnel to Sims Bayou, Harris Co., CIVENG-41-243-57-30, TEXAS. U. S. Eng., Box 1229, Galveston, Tex. Bids Nov. 9. CD 11/27, under LB.

▲† **Bauer-Smith Dredging Co., P.** O. Box 88, Port Lavaca, Tex., CA $1,998,889, dredging Neches River and cut-off channel and/or dredging from Sabine Pass to Port Arthur, Jefferson and Orange Counties, CIVENG-41-243-57-20, TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Nov. 9. CD 11/23, under LB.

▲ **Lone Star Constructors,** 10301 Shady Trail, Dallas, Tex. CA $2,800,000, 93.7 mi. 18 in. crude oil pipe line from near Odessa to Kemper Co., TEXAS. Humble Pipe Line Co., 1216 Main St., Hoston, Tex. CD 11/14.

† **Whittle Contg. Co.,** P. O. Box 5602, Dallas, Tex., LB $350,634, misc. structures, Dallas Floodway, Trinity River, CIVENG-41-443-57-10, TEXAS. U. S. Eng., P. O. Box 1600, Fort Worth, Tex. Bids Nov. 27. CD 10/23.

Comrs. Colorado Co., Court House, Columbus, Tex. Own Forces. $120,000, road work, cutting in new road and some maintenance throughout county, COLUMBUS, TEX. CD 9/20.

Austin Paving Co., 1000 Singleton Blvd., Dallas, Tex. CA $306,357, street imprvs., storm sewers in North Dallas, Marshal Lane, Walnut Hill Lane, DALLAS, TEX. City, City Hall, Dallas, Tex. Bids Dec. 11. CD 1/31.

Bock Constr. Co., 2630 Ferris St., Dallas, Tex., CA $663,574, general constr. airways air servicing proj. Love Field, incl. office and 2 hangars, DALLAS, TEX. City, City Hall, Dallas, Tex. (Southwest Airmotive Co., 8401 Cedar Springs St., Dallas, Tex., lessee). CD 12/20, under LB.

Dallas Co., Court House, Dallas, Tex. Own Forces. $200,000, road maintenance and repairing throughout county, DALLAS, TEX. R. H. Clinger, Dallas, Tex., co. engr. CD 2/27/50.

El Paso Co., Court House, El Paso, Tex. Own Forces. $199,000, general new road constr., some paving, surfacing, repairing, drainage, EL PASO, TEX. CD 9/20.

Glade Constr. Co., P.O. Box 2055, Fort Worth, Tex., LB $129,500, est. $150,000. South Side Third Pressure Plane Feeder Main, FORT WORTH, TEX. City, Dr. Jack Garrison, mayor, City Hall, Fort Worth, Tex. Bids Dec. 20. CD 11/28.

Borden Co., Gail, Tex. Own Forces. $110,000, graveled road, maintenance, repair work, GAIL, TEX. CD 9/20.

▲ **Hyde Constr. Co.,** Box 687, Jackson, Miss., LB $2,090,000, reconstr. Piers 30, 32 and 33, GALVESTON, TEX. The Galveston Wharves, 2402 Avenue C, Galveston, Tex. Bids Dec. 17. CD 11/28.

Russ Mitchell, Inc., Box 8068, Houston, Tex., LB $263,267, est. $276,500, Bennington St. Storm Sewers, HOUSTON, TEX. City, City Hall, Houston, Tex. Bids Dec. 12.

Brown & Root, Inc., Box 3, Houston, Tex., LB $235,530, rein.-con type paving portion Austin St., concrete curbs and gutters, HOUSTON, TEX. City, City Hall, Houston, Tex. Bids Dec. 21.

Newton Constr. Co., Box 4108, Odessa, Tex., CA $97,320, park work, incl. museum, MONAHANS, TEX. Sand Hills State Park and Ward Co., Monahans, Tex. Bids Dec. 13. CD 12/7.

Ector Co., Odessa, Tex. Own Forces. $275,000, general road constr., drainage, surf., ODESSA, TEX. CD 9/20.

Clyde Smith, Box 791, Austin, Tex., LB $106,525, water pump station and sewage treatment plant, WYLIE, TEX. City, Wylie, Tex. Bids Dec. 13. CD 12/6.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver.

J. B. Kenney, Inc., 3233 Osage St., Denver, Colo., CA $337,227, Est. $282,000, constr. structures 0.069 mi. Idaho Springs, Proj. No. F-005-33 (9), Clear Creek Co. Bids Dec. 18. CD 12/7.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver.

Graham Constr. Co., Pueblo, Colo., CA $333,682, Est. $356,000, plant mixed asphaltic surf. 4.956 mi. Proj. No. FLHP 8 (3) and BF 023-1 (4), Montezuma Co. Bids Dec. 21, awarded Dec. 21. CD 12/13.

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION

NORTHERN ILLINOIS TOLL HIGHWAY

ADVERTISEMENT FOR BIDS

CONTRACT T-12A; CONTRACT T-12B; CONTRACT T-12C; CONTRACT T-12ABC; CONTRACT N-6A.

Sealed proposals for contracts listed and described below will be received by The Illinois State Toll Highway Commission at its office, Room 1654, 20 North Wacker Drive, Chicago 6, Illinois, until 11:00 A.M., Central Standard Time, on Thursday, January 31, 1957, and then immediately taken to the Louis XVI Room of the Sherman Hotel, Randolph and Clark Streets, Chicago, Illinois, publicly opened, and read aloud.

CONTRACT T-12A

The work to be done under this Contract shall be commenced on June 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this Contract shall be completed on or before July 31, 1958, and consists of:

The grading, drainage, paving, construction of appurtenances, and the erection of precast concrete bridges for approximately 5.057 miles of the Northern Illinois State Toll Highway, Tri-State Route, beginning at a point one thousand nine hundred ninety-five and fifty four hundredths (1,995.54) feet southeasterly from the center line of Duffy Lane and approximately eight thousand (8000) feet east of Saunders Road, and ending five thousand one hundred forty-four and four tenths (5,144.40) feet north of the centerline of State Route No. 59-A and approximately one thousand one hundred (1100) feet east of Bradley Road.

The approximate quantities of the principal items of work are as follows:

Roadway Excavation	**179,000 Cu. Yds.**
Borrow	**1,280,000 Cu. Yds.**
Selected Subgrade	**124,000 Cu. Yds.**
Granular Subbase	**62,000 Cu. Yds.**
10" Reinforced Portland Cement Concrete	**263,000 Sq. Yds.**
Cast in Place Piling	**14,500 Lineal Ft.**
Structural Concrete	**4,200 Cu. Yds.**
Reinforcing Steel	**805,000 Pounds**

CONTRACT T-12B

The work to be done under this Contract shall be commenced on May 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this Contract shall be completed on or before July 31, 1958, and consists of:

The grading, drainage, paving, construction of appurtenances, and the erection of precast concrete and steel bridges for approximately 3.486 miles of the Northern Illinois State Toll Highway, Tri State Route, beginning at a point 5,144.40 feet north of the centerline of State Route No. 59A and approximately 1,100 feet east of Bradley Road at Toll Highway Station 467 + 00 in Libertyville Township, Lake County, Illinois, and extending northwesterly to a point about 3,900 feet south of State Route 137 at Toll Highway Station 650 + 00 in Libertyville Township, Lake County, Illinois.

The approximate quantities of the principal items of work are as follows:

Roadway Excavation	**139,000 Cu. Yds.**
Borrow	**2,250,000 Cu. Yds.**
Selected Subgrade	**74,000 Cu. Yds.**
Granular Subbase	**43,000 Cu. Yds.**
10" Reinforced Portland Cement Concrete	**155,000 Sq. Yds.**
Cast in Place Piling	**16,725 Lineal Ft.**
Structural Concrete	**7,700 Cu. Yds.**
Reinforcing Steel	**1,133,500 Pounds**
Structural Steel, Erection	**719,000 Pounds**

CONTRACT T-12C

The work to be done under this Contract shall be commenced on May 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this Contract shall be completed on or before July 31, 1958, and consists of:

The grading, drainage, paving, construction of appurtenances, and the erection of precast concrete and steel bridges for approximately 3.678 miles of the Northern Illinois State Toll Highway, Tri-State Route, beginning at a point about 3,900 feet south of State Route 137 at Station 650 + 00 in Libertyville Township, Lake County, Illinois, and extending Southwesterly to a point 1,810 feet Northwest of State Route 120 at Station 844 + 17.35 in Warren Township, Lake County, Illinois.

The approximate quantities of the principal items of work are as follows:

Roadway Excavation	**615,000 Cu. Yds.**
Borrow	**214,000 Cu. Yds.**
Selected Subgrade	**89,000 Cu. Yds.**
Granular Subbase	**51,000 Cu. Yds.**
10" Reinforced Portland Cement Concrete	**151,000 Sq. Yds.**
Cast in Place Piling	**5,000 Lineal Ft.**
Structural Concrete	**3,100 Cu. Yds.**
Reinforcing Steel	**563,600 Pounds**
Structural Steel, Erection	**1,434,600 Pounds**

CONTRACT T-12ABC

The work to be done under this Contract which covers a combination of Contracts T-12A, T-12B and T-12C shall be commenced on May 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this Contract shall be completed on or before July 31, 1958, and consists of the work as above described for the individual Contracts, taken together.

CONTRACT N-6A

The work to be done under this Contract shall be completed in four hundred ninety-five (495) calendar days after the date specified in the Notice to Proceed, and consists of:

The grading, drainage, paving, the construction of appurtenances, and the erection of precast concrete bridges for approximately 4.04 miles of the Northern Illinois Toll Highway in Construction Section N-6A thereof, beginning at a point about 500 feet east of Fox River at Northern Illinois Toll Highway centerline Station 2128 + 33.5 in Elgin Township, Kane County, Illinois, and extending easterly to a point about 1,700 feet east of Bartlett Road at Northern Illinois Toll Highway Centerline Station 2285 + 00 in Hanover Township, Cook County, Illinois.

The approximate quantities of the principal items of work are as follows:

Roadway Excavation	**900,000 Cu. Yds.**
Borrow	**400,000 Cu. Yds.**
Selected Subgrade	**115,000 Cu. Yds.**
Granular Subbase	**65,000 Cu. Yds.**
10" Reinforced PCC Pavement	**197,000 Sq. Yds.**
3" Bituminous Concrete Shoulders	**102,000 Sq. Yds.**
Structural Concrete	**4,700 Cu. Yds.**
Reinforcing Steel	**655,000 Pounds**

Write, wire or phone for detailed information and necessary forms, Chief Engineer, Room 1654, 20 N. Wacker Dr., Chicago 6, Ill. Telephone Franklin 2-7929.

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION

By Austin L. Wyman, Chairman

† **NEW MEXICO**—Bureau P. Rds., Dpt. Commerce, Bldg. 40, Denver Federal Center, Denver, Colo.,
Allison & Haney, 1412 Broadway, N.E., Albuquerque, N. M. CA **$620,143**. Datil Reserve Dry Creek 4.788 mi., N. M. Proj. 21 T, Catron Co. Bids Dec. 6, awarded Dec. 20. CD 11/27.

BUILDINGS—LB & CA

▲ **Weitz Co., Inc.**, 406 Fleming Bldg., Des Moines, Iowa. LB **$1,259,800**. lease-purchase project POST OFFICE and FEDERAL BLDG., BURLINGTON, IOWA. General Services Admin., P. Bldg., Serv. Region 6, 2306 E. Bannister Rd., Kansas City, Mo. Bids Dec. 20. CD 11/16

▲ **Inter-State Heating & Plumbing Co.**, 2120 Washington St., Kansas City, Mo. LB **$764,980**. mechanical work for municipal GENERATING STATION, INDEPENDENCE, MO. City, City Hall, Independence, Mo. Bids Dec. 13. CD 11/23;
Squire Electric Co., 1813 Grand St., Kansas City, Mo. LB **$297,777**. electrical work (Independence, Mo.).

Lecoutour Constr. Co., 1419 Hampton Ave., St. Louis 10, Mo. CA **$944,600**. general constr., St. Thomas of Aquinas HIGH SCHOOL, 13 acre tract northwide Lindbergh Blvd. intersection with San Fernando Hills subdivision, ST. LOUIS COUNTY, MO. St. Louis Archdiocese of Catholic Church, Rev. James R. Hartnett, exec. secy., 3810 Lindell Blvd., St. Louis 8, Mo. Bids Dec. 6. CD 11/9.

Bob Eldridge Constr. Co., 3206 Strong St., Kansas City, Kan. LB **$400,737**. (1st unit), WOMEN'S DORMITORY at Central Missouri State College, WARRENSBURG, MO. State, Bd. Regents, Warrensburg, Mo. Bids Dec. 13. CD 11/27.

▲ **Hoke Constr. Co.**, Stillwater, Okla., LB **$1,692,000**. 240 unit family rental APARTMENTS, STILLWATER, OKLA. Oklahoma Agricultural & Mechanical College, Stillwater, Okla. CD 9/17.

▲† **King Constr. Co.**, P. O. Box 39, Texarkana, Ark., CA **$1,652,119**, 6 concrete BUILDINGS, utilities, fencing, railway spur, Pantex Ordnance Plant, Inv. 292-57-19, AMARILLO, TEX. U. S. Atomic Energy Comn., Box 5400, Albuquerque, N. M. Bids Dec. 5. CD 12/18, under LB.

Robert H. Smith & Co., 1915 Kolfahl St., Houston, Tex. LB **$417,300**. CHURCH-RECTORY, BAYTOWN, TEX. St. Josephs Parish Church, Baytown, Tex. Bids Dec. 11. CD 12/3.

Cowdin Brothers Contractors, 411 S. Haskell St., Dallas, Tex. CA **$729,000**. OFFICE, DALLAS, TEX. State Farm Insurance Companies, 6131 Luther Lane, Dallas, Tex. Bids Dec. 7. CD 12/18, under LB.

David Asch & Co., 2107 N. Harwood St., Dallas, Tex., CA **$406,832**, general constr. GYMNASIUM for four various schools, DALLAS, TEX. Dallas Independent School Dist., 3700 Ross St., Dallas, Tex. Boyle & Burke, Inc., 8220 Westchester St. and Mark Lemmon, Thomas Bldg., Dallas, Tex., archts. J. R. Joiner, 2921 Fairmount St., Zumwalt & Vinther, Merchantile Sec. Bldg., Dallas, Tex., engrs. Bids Dec. 11. CD 12/15/54.

Southwestern States Constr. Co., 11272 Ables St., Dallas, Tex., CA **$839,172**, Sequoyah JUNIOR HIGH SCHOOL, DALLAS, TEX. Dallas Independent School Dist., 3700 Ross St., Dallas, Tex. Bids Dec. 11. CD 12/21, under LB.

LeBlanc, Inc., Box 351, Houston, Tex. LB **$403,106**, Elementary SCHOOL, Lake Jackson; LB **$422,879**, Elementary SCHOOL, Clute, near FREEPORT, TEX. Brazosport Independent School Dist., Freeport, Tex. Emory S. White & Arne G. Engberg, 2017 S. Shepherd Dr., Houston, archts. Walter P. Moore, 2 Pinedale St., and B. Johnson & Assocs., 4926 Travis St., Houston, Tex., engrs. Bids Dec. 12. CD 2/20.

Brown & Root, Inc., Box 3, Houston, Tex., CA **$330,000**. PLANT, HOUSTON, TEX., Armco Drainage & Metal Products, Inc., (subsidiary Armco Steel Corp.); C & I Life Bldg., Houston, Tex.

▲ **Rex D. Kitchens Constr. Co.**, 3006 S. Austin St., Austin, Tex., CA **$1,872,038**, Group 1, COLLEGE BUILDING, LUBBOCK, TEX., Texas Technological College, Lubbock, Tex. Bids Dec. 11. CD 12/19, under LB.

Temple Assocs., Diboll, Tex., CA Est. **$500,000**. plastics products mfg. PLANT, NACOGDOCHES, TEX. Bassons Industries Corp., 1424 W. Farms Rd., New York N. Y., and c/o Joyn Streit, Nacogdoches, Tex. CD 10/29.

R. V. King, Builder, 12202 Hempstead St., Houston, Tex. Own Forces. **$389,100**, 41 DWELLINGS; **$351,425**, 33 DWELLINGS, SPRING BRANCH, TEX. CD 11/21.

Weaver Constr. Co., 5555 E. Evans St., Denver, Colo., LB **$659,700**, general constr., 46,104 sq. ft. Godsman Grade SCHOOL, DENVER, COLO. School Dist. 1, 414 14th St., Denver, Colo. Bids Dec. 19. CD 12/4.

▲ **Western Knapp Engineering Co.**, 760 Folsom St., San Francisco, Calif. CA **$5,000,000**. URANIUM MILL, Ambrosia Lake District, GRANTS, N. M. Homestake-New Mexico Partners, (Homestake Mining Co., Rio de Oro Uranium Mines and United Western Minerals Co. & Assocs.), 100 Bush St., San Francisco, Calif. CD 10/8.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Idaho, Arco**—TESTING REACTOR STATION—1/16—Atomic Energy Comn., Idaho Operations Office, Idaho Falls, 10x51 ft. masonry addn. to materials testing reactor cafeteen at National Reactor Testing Station, Contr. AT (10-1)884. CD 12/21.

BUILDINGS—BA

Calif., Berkeley—GARAGE—BA 1/18—City, City Hall, 5 story open design, rein.-con., self reserve ramp type garage, 453-autos. $620,000. Plans deposit $25. Headman, Ferguson & Carrol, 2168 Shattuck St., engrs. CD 3/15/55.

HEAVY CONSTRUCTION—LB & CA

Geo. K. Meacham, Lewistoh, Idaho, LB. **$124,167**. constr. 6100 ft., 24 in. water main from reservoir to filter plant, LEWISTON, IDAHO, City, City Hall, Lewiston, Idaho.

Fiorito Bros., 1100 Leary Way, Seattle, Wash. CA **$681,075**. draining, clearing, grading, surfacing and 2 rein.-con. slab bridges on 5.207 mi. Primary State Hy. 1 north Burn Rd. to Conway Junction FAP No. IN-001-4 (17), Snohomish and Skagit Counties, WASHINGTON. State Hy. Comn., Olympia, Wash. Bids Dec. 18. CD 12/27, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,
Baun Constr. Co., 3229 W. Dudley Ave., Fresno, Calif., LB **$356,354** (5 bidders) grading, surf. 3.4 mi. State Rte. 187 between Alamorio and Brawley, Imperial Co. Bids Dec. 20. CD 11/27.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, Calif.—**Hall Sloat Electric Co., Inc.**, 2845 Chapman St., Oakland, Calif., LB **$115,900** (6 bidders) install illuminated sign sys. on Eastshore Freeway in San Lorenzo, San Leandro and Oakland, Alameda Co.; LB **$83,879** (3 bidders) install modify traffic signal sys. and highway lighting, constr. channelization on El Camino Real between Embarcadero Rd. and Mary Ave. in Sunnyvale, Santa Clara Co.;
Calif.—**Jesse H. Harrison**, P. O. Box 315, San Ardo, Calif., LB **$613,779** (11 bidders) seal coating 5.7 mi. Sign Rte. 36 between 3.2 mi. east of Tedock Rd. and Dry Creek, install drainage facilities, Tehama Co. Bids Dec. 19. CD 11/27.

Noyes Roach Co., 5017 Telegraph Rd., Los Angeles 22, Calif., CA **$576,400**, equipment repair yard, 2513 E. 24 St., LOS ANGELES, CALIF. Bd. P. Wks., City Hall, Los Angeles, Calif. Bids Nov. 10. CD 11/27, under LB.

Cal-Central Constr. Co., 7500 14th Ave., Sacramento, Calif., CA **$532,074**, constr. new city corporation yard, 24th St. Rd., SACRAMENTO, CALIF. City, City Hall, 9th and I Sts., Sacramento, Calif. Bids Dec. 13, awarded Dec. 20. CD 12/19, under LB.

† **Daley Corp.**, P. O. Box 4067, San Diego 4, Calif., CA **$577,551**, imprv. 54 St., University Ave. and El Cajon Blvd., SAN DIEGO, CALIF. City Council, Civic Center, San Diego, Calif. Bids Nov. 15. CD 11/23, under LB.

BUILDINGS—LB & CA

Farwest Constr. Co., 608 W. 44 St., Seattle, Wash. CA **$786,789**. reconstr. Denny HALL, SEATTLE, WASH. University of Washington, Seattle 5, Wash. Bids Oct. 23. CD 11/16, under LB.

Rigby Constr. Co., 15215 28 Ave. S., Seattle, Wash. Day Labor, **$350,000**. 4 story 40 unit rein.-con. APARTMENT HOUSE, SEATTLE, WASH.

L. Kowlowski, P. O. Box 26, Madras, Ore., LB **$588,000** (5 bidders) 2 story, concrete HIGH SCHOOL addn., KLAMATH FALLS, ORE. Klamath Union High School Dist. 2, Klamath Falls, Ore. Howard R. Perrin, 1121 Main St., Klamath Falls, Ore., archt.

Coey & Medvin, 1250 S. Ogden St., Los Angeles, Calif. Owner Builds. **$684,000**, 57 DWELLINGS, Heinfer, Cerritos and Rosser Sts., BELLFLOWER, CALIF.

Security Builders, 186 N. Canon Dr., Beverly Hills, Calif., CA **$970,000**. 4 story, 102,000 sq. ft. steel frame STORE, 9725 Wilshire Blvd., BEVERLY HILLS, CALIF. Linden-Wilshire Bldg., 168 N. Canon Dr., Beverly Hills, Calif.

C. L. Peck, 827 Monte Leon Dr., Beverly Hills, Calif. CA **$650,000**. 4 story, 36,000 sq. ft. concrete OFFICE, 9250 Wilshire Blvd., BEVERLY HILLS, CALIF. Wallace Moir, 130 El Camino St., Beverly Hills, Calif. CD 3/24/55.

Harbor Constr. Co., 2116 S. Main St., Santa Ana, Calif. CA **$380,000**, 34 stucco DWELLINGS, Tr. 2726, COSTA MESA, CALIF. College Park, 2116 S. Main St., Santa Ana, Calif. Awarded Dec. 12.

▲ **Sun Gold, Inc.**, 3631 10th St., Riverside, Calif., and **Inland Empire Constr. Co.**, 3591 Central St., Riverside, Calif., LB **$2,896,685**, construct and finance, 189 units, stucco on wood frame, Capehart HOUSING, FORT ORD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Dec. 18. CD 6/11.

D. W. Edwards, 1427 Rene Dr., Santa Ana, Calif., CA **$520,000**. 65 DWELLINGS, GARDEN GROVE, CALIF. Harbor Homes, P. O. Box 509, Santa Ana, Calif.

Ted Schneider, 205 Crescent Ave., Lodi, Calif., LB **$350,000**. 100x170 ft., concrete block MARKET BLDG. Ham Lane and Lockford St., LODI, CALIF. Ed Wakimoto & Assocs., 204 W. Lodi St., Lodi, Calif.

▲ **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif. CA **$1,894,721**, faculty and students RESIDENCE, OAKLAND, CALIF. College of Holy Names, 2036 Webster St., Oakland, Calif. CD 11/23, under LB.

▲ **Bechtel Corp.**, 7th and Studebaker Rd., Los Angeles, Calif., CA Total est. **$35,000,000**. design and construct, 400,000 kw. STEAM ELECTRIC GENERATING STATION at Mandalay Beach, near OXNARD, CALIF. Southern California Edison Co., 601 W. 5 St., Los Angeles 53, Calif. CD 12/12/55.

Paul L. Burkhard, 610 S. Glendale St., Palmdale, Calif., CA **$482,500**, 42 DWELLINGS, E. Sweetbrier, Ave. Q-5, 22nd St. East, Malby Ave., N. Ladelle St., PALMDALE, CALIF. Palmdale Villas, Inc., 610 S. Glendale St., Palmdale, Calif.

Tom E. Norcross, 6053 Atlantic Ave., Long Beach, Calif., LB **$381,900** (6 bidders) general constr. 1 story, rein.-con., brick GYMNASIUM and related facilities, Calif. State Polytechnic College, Kellogg Campus, POMONA, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Dec. 19. CD 11/27.

Beverly Development Co., 8549 Wilshire Blvd., Beverly Hills, Calif., CA **$420,100**, 30 DWELLINGS, E. Roth, E. Dancer and E. Fairgrove Sts., PUENTE, CALIF. Beverly Mutual Homes, Inc., 8549 Wilshire Blvd., Beverly Hills, Calif.

Walter R. Sant & Sons, 1461 San Marino Ave., San Marino, Calif., CA **$415,400**, 31 DWELLINGS, 26,600 blk. Silver Springs Rd., ROLLING HILLS, CALIF. Rollingwood Homes, Inc., 5300 Montemalaga St., Rolling Hills, Calif. E. H. Fickett, 7421 Beverly Blvd., Los Angeles, Calif., archt.

Newport Building Corp., 7345 Van Nuys Blvd., Van Nuys, Calif. Owner Builds. **$352,000**, 44 frame DWELLINGS, Tr. 2487, SANTA ANA, CALIF.

Clairmont Co., 1150 Silverado St., San Diego, Calif. Owner Builds. **$622,540**, 54 stucco DWELLINGS, Clairemont Park, Tr. 1, SAN DIEGO, CALIF.

▲ **Eichler Homes, Inc.**, 2001 E. Camino Real, Palo Alto, Calif. Owner Builds. **$7,500,000**, 360 HOMES at Marinwood, north of SAN RAFAEL, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

Quebec—BA 1/22—St. Lawrence Seaway Auth., No. 2, Temporary Bldg., Ottawa, Ont., superstructure of N.Y.C. swing bridge at Upper Beauharnois Lock, Soulanges Sect. near Beauharnois. A. G. Murphy, 685 Cathcart St., Montreal, owners ch. engr.

BUILDINGS—BA

▲ **Ont., Toronto**—PLANT—BA 1/15—Canadian Steel Corp., Ltd., Ojibway, superstructure for 1 story, 250,000 sq. ft. steel frame, steel mfg. plant, Martingrove Rd., Etobicoke. $2,500,000. Giffels & Vallet of Canada, Ltd., 17 Queen St. E., engrs. CD 7/17.

▲ **Ont., Ottawa**—CITY HALL—BA 1/31—City, N. R. Ogilvie, clk., 48 Rideau St., 8 story, 60x240 ft. city hall with protruding council chamber, 50x110 ft., structural steel frame constr., 160-car parking space. $2,915,000. Plans deposit $100. Rother, Bland & Trudeau, 1115 Sherbrooke St. W., Montreal, Que., archts. CD 2/14.

BUILDINGS—SLC

▲ **Ont., Kitchener**—WAREHOUSE, etc.—B. F. Goodrich, Canada, Ltd., 251 King St. W., soon lets contract 1 story 243x409 ft., warehouse, 2 story 100x174 ft. office, steel frame, brick and block constr., 12-acre site, Weber St. **$1,255,000**. Prack & Prack, 310 Main St. E., Hamilton, archts. CD 8/8.

Ont., Toronto—CLUBHOUSE—Toronto Cricket & Skating Club, c/o Mathers & Haldenby, archts., 15 St. Mary St., soon lets contract, 2 story, bsmnt., 228x250 ft. clubhouse bldg., with admin. bldg., with penthouse 200x50 ft., two rinks, one 92x200 ft. and other 92x160 ft. with wood truss roof over rinks. $500,000. W. H. Bonus, 154 Merton St., engr. CD 11/28.

HEAVY CONSTRUCTION—LB & CA

Claydon Co. Ltd., 290 Garry St., Winnipeg, Man. CA **$651,586**. water treatment plant, BRANDON, MAN. City, City Hall, Brandon, Man. Bids Oct. 17, awarded Dec. 14. CD 9/26.

▲ **McNamara Constr. Co. Ltd.**, 42 Industrial St., Leaside, Toronto, Ont., CA **$3,574,000**, dredging Cornwall Island, North Channel near Cornwall, Ont., Station 16 plus 00 to 74 plus 00, International Rapids Sect. of Seaway ONTARIO. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids Nov. 13, awarded Dec. 14. CD 11/20, under LB.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
J. P. Porter Co. Ltd., 936 Dominion Square Bldg., Montreal, Que., CA **$658,888**. grading, drainage 1.02 mi. Queen Elizabeth Quay, northerly half of the south approach to Burlington Bridge, from south end of Bridge southerly, Contr. 56-190, Burlington. Awarded Dec. 14. CD 12/20, under LB.

Scott-Jackson Constr. Ltd., 501 Evans Ave., Toronto, Ont., LB **$234,900**, storm trunk sewer in tunnel and open cut approx. 1,074 ft. 8 ft. diam. circular and 8 ft. equivalent diam. elliptical storm sewer, crossing Yonge St. at Alexander Muir Gardens, TORONTO, ONT. Municipailty of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. CD 9/3/54.

▲ **Pentagon Constr. Co. Ltd.**, 5005 Namur St., Montreal, Que., CA **$1,414,000**. constr. marine towers and receiving facilities, outside Grain Elevator No. 1, MONTREAL, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Awarded Dec. 17. CD 11/26, under LB.

Adelard Boisvert, 6000 Third Ave., Rosemount, Montreal, Que., CA **$126,000**, water mains, sewers, rue Savane and side streets, ST. VINCENT DE PAUL, QUE. Ville de St. Vincent de Paul, Que. C. E. Gravel, 3717 Blvd. Levesque, L'Abord-A-Plouffe, Que., engr. Awarded Dec. 17.

BUILDINGS—LB & CA

Pearson Constr. Co. Ltd., 1019 Erin St., Winnipeg, Man., CA **$509,842**, 3 story, part bsmnt., masonry, steel, concrete UNIVERSITY BLDG. addn., WINNIPEG, MAN. University of Manitoba, Fort Garry, Man. Moody & Moore, 295 Broadway Ave., Winnipeg, Man., archts. Awarded Dec. 12. CD 12/23/54.

▲ **Schultz Constr. Ltd.**, 34 McMurray St., P. O. Box 157, Brantford, Ont., CA **$1,699,000**. 3 story, bsmnt., FEDERAL BLDG. addns., alterations, BRANTFORD, ONT. Dpt. P. Wks. Hunter Bldg., Ottawa, Ont. Bids Nov. 14, awarded Dec. 13. CD 11/23, under LB.

▲ **C. F. Braun Co. Ltd.**, c/o C. F. Braun, Inc., 1000 S. Freemont Ave., Alhambra, Calif. CA Est. **$2,000,000**. design and construct, OIL REFINERY, near BRONTE, ONT. Cities Service Oil Co. Ltd., 1179 Yonge St., Toronto, Ont. Awarded Dec. 17.

Ross-Meagher, Ltd., 9 Echo Dr., Ottawa, Ont., LB **$413,000** (3 bidders) FEDERAL BLDG. alterations, 52 Nicholas St., OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Noffke & Ingram, 46 Elgin St., Ottawa, Ont., archts. CD 12/23/49.

▲ **Bennett-Pratt, Ltd.**, 5 Maple Leaf Dr., Weston, Ont., LB W. A. Porter Memorial Collegiate, HIGH SCHOOL, TORONTO, ONT. Scarborough Bd. Educ., 1640 Kingson Rd., Toronto, Ont. Bids Dec. 17. CD 12/7.

R. G. Kirby & Sons, Ltd., 539 Yonge St., Toronto, Ont. CA Est. **$350,000** (10 bidders) 1 story, 48,000 sq. ft., steel, brick, PLANT and OFFICE, Dixie Rd. TORONTO, ONT. Caterpillar Tractor Co., 600 W. Washington St. E., Peoria, Ill. Bids Nov. 30, awarded Dec. 13. CD 11/29.

Camston, Ltd., 2916 Bloor St. W., Toronto, Ont., CA Est. **$350,000**. 41,000 sq. ft. FACTORY extens., with 14,000 sq. ft. OFFICE space on second floor, masonry constr., Scarborough, TORONTO, ONT. Triangle Conduit & Cable (Canada) Ltd., 4006 Dundas St. W., Toronto, Ont. Crang & Boake, 79 Huntley St., Toronto, Ont., archts., Alex Tobias & Assocs., Ltd., 194 Wilson Ave., Toronto, Ont., engrs. Awarded Dec. 17.

Roland Chalifoux, Ltee., 6275 Papineau St., Montreal, Que., LB **$661,000** (3 bidders) 1 and 2 story 115x230 ft., structural steel frame, stone trimmed brick walls, Arts and Trades SCHOOL, concrete fdn., LOUISEVILLE, QUE. Dpt. Youth & Social Welfare, Quebec City, Que. Denoncourt & Denoncourt, 1240 rue Royale, Three Rivers, Que., archts. Leblanc & Montpetit, 515 rue Demontigny E., Montreal, Que., engrs. Bids Nov. 13.

▲ **G. Daneau**, 10 St. James St. W., Montreal, Que., CA **$1,575,000**. 3 story, bsmnt., 64x67 ft., 252-suite concrete fdn., brick APARTMENT, Pointe aux Trembles, MONTREAL, QUE. Jardins St. George Ltee., 10 St. James St. W., Montreal, Que. Awarded Dec. 14.

Foundation Co. of Canada, Ltd., 1980 Sherbrooke St. W., Montreal, Que., CA Est. **$350,000**. highway transport TERMINAL, 6356 Cote des Liesse Rd., MONTREAL, QUE. Kingsway Transports, Ltd., 3540 St. Patrick St., Montreal, Que., Brian R. Perry, 1168 St. Catherine St. W., Montreal, Que., engr. Awarded Dec. 17.

Towercraft & Fortcrest, Inc., 1434 Towers St., Montreal, Que. Owner Builds. **$600,000**. 9 story, 63x161 ft., brick APARTMENT, concrete fdn., Towers St., MONTREAL, QUE. Charles Grenier, 3600 Barclay Ave., Montreal, Que., archt.

▲ **J. Serrentino Constr. Co. Ltd.**, 6660 Decarie Blvd., Monteral, Que., CA Est. **$3,500,000**. PLANT for mfr. caustic soda and chloride, 50-acre site, SHAWINIGAN EAST, QUE. Shawinigan Chemicals, Ltd., Shawinigan Falls, Que. Awarded Dec. 12. CD 7/24.

ALASKA

HEAVY CONSTRUCTION—BA

† **Alaska**—BA 1/11—U. S. Eng., Anchorage, rock and gravel breakwater, Valdez, Inv. 57-2. Extended date. CD 11/30.

BUILDINGS—LB & CA

† **J. B. Warrack Co.**, 407 3 Ave. W., Seattle, Wash., **$486,000** (7 bidders) 1 story 17,000 sq. ft. rein.-con., masonry, steel frame, JUNIOR-SENIOR HIGH SCHOOL, Proj. 850-A-159, VALDEZ, ALASKA. Alaska P. Wks., Dpt. Interior, P. O. Box 1181, Juneau, Alaska. Bids Dec. 19. CD 11/16.

FOREIGN

BUILDINGS—BA

Iraq, Kerbela—PLANT—BA 4/5—The Development Bd. and Ministry of Development of Govt. of Iraq, Baghdad, supply, erection and supervision of operation of plant for liquid sugar and dibis (date syrup) and the related power station. Plans deposit ID. 10,000.

PROPOSED PROJECTS

SEWERS, WASTE DISPOSAL

▲ **Conn., South Windsor**—Conn. Water Co., Naugatuck, water supply sys. for wells from South Windsor. $1,000,000.

▲ **Mich., Farmington**—Farmington Twp., Albert Gain, superv., water mains to take Detroit water and serve Farmington Twp., City and Southfield. $1,783,000.

▲ **Okla., Lawton**—City, voted bonds, Dec. 18, Cache Creek Reservoir. $6,182,000. W. B. Hendricks, Lawton, consult. engr. CD 12/17.

SEWERS, WASTE DISPOSAL

▲ **Calif., Stockton**—City, City Hall, sewerage facilities, incl. initial units of sewage treatment plant and conversion of present North Disposal Plant to a pumping station, $1,182,100.

Idaho, Lewiston—City, City Hall, **$600,000** bond election Feb. 26, sewage treatment plant. CD 6/6.

▲ **Ky., Louisville**—Metropolitan Sewer Dist., 412 W. Market St., Auburndale Area sanitary sewers, $755,000. Bids in January or February; Barrett Ave.-Clark's Lane sewer exten., $60,000; Goss Ave. extension sewer, $260,000; Mill Creek exten sewer, $390,000; Peachtree St. extension sewer, $580,000. Metcalf & Eddy, Statler Bldg., Boston, Mass., consult. engrs. Morris Forman, city engr. CD 3/15/56.

▲ **Mich., Detroit**—Bd. Supervs. Wayne Co., City-County Bldg., Detroit, constr. Down River Interceptor along Detroit River, $2,865,000; sewage disposal plant and treatment facilities to serve Dearborn and other municipalities in Western Wayne Co., $19,000,000; Grosse Pointe interceptor sewer and pumping station, Grosse Pointe, $3,246,000; expansion of Wyandotte sewage treatment plant, Wyandotte, $4,926,000; major interceptor sewer projs., along Lower Rouge River, $11,863,000; Inkster Rd. interceptor, $3,982,000; Middle Rouge interceptor, $2,840,000. Albert T. Kunze, sanitary engr. CD 11/12.

Minn., Falcon Heights (P. O. St. Paul) Village, O. J. Stewart, clk., installing sanitary sewerage sys. $500,000. Toltz, King, Duvall, Anderson & Assoc., 1509 Pioneer Bldg., St. Paul, consult. engrs.

▲ **Pa., Enola**—East Pennsboro Twp., 243 W. Columbia Rd., Enola, trunk and lateral sewers, pumping station, force mains, sewer treatment plants in Summerdale and Enola. $2,000,000. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. Front St., Harrisburg, engr. CD 12/12.

▲ **Wis., Milwaukee**—Sewerage Comm. of City of Milwaukee, Jones Island, exten. sewerage sys. and plant imprvs. $2,500,000. Ray D. Leary, c/o owner, ch. engr.

▲ **Wis., Milwaukee**—Metropolitan Sewerage Comm. of Milwaukee Co., Milwaukee, main sewer extensions. $2,500,000. Ray D. Leary, c/o owner, ch. engr.

BRIDGES

▲ **ALBERTA**—Dpt. P. Wks., Parliament Bldgs., Edmonton,

Dunvegan—highway bridge over Peach River at Dunvegan. $3,000,000.

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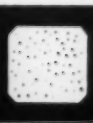
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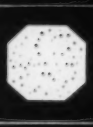
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STREETS AND ROADS

Calif., Sunnyvale—City, City Hall, various street imprvs. and overpass, Mathida Ave., widen Lawrence Station Rd. $600,000.

▲ **Conn., Fairfield**—Town, Town Hall, 40 mi. highway rebuilding and imprvs. $2,500,000. Frank E. Daniels, town engr. CD 3/21.

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **Belknap Co.**—hot b. conc. roadway 1.9 mi. N. Main St., Laconia, $375,000.

Carroll Co.—surf. treated gravel roadway 0.4 mi. N.H. 16A, Jackson, $18,000.

hot b. conc. roadway 0.45 mi. Main St., N.H. 16, Conway, $100,000.

surf. treated gravel roadway 1.1 mi. N.H. 113A, Sandwich-Tamworth, $60,000. CD 8/30/44.

Cheshire Co.—surf. treated crushed gravel roadway 2 mi. N.H. 12, Fitzwilliam, $325,000.

surf. treated gravel roadway 1.5 mi. N.H. 10, Gilsum, $225,000. CD 10/10.

road mix roadway 1 mi. and RR overpass, N.H. 12, Walpole, $230,000.

surf. treated gravel roadway 1.7 mi. Cathedral of the Pines Rd., Rindge, $225,000.

road mix roadway 2.5 mi. and two bridges, N.H. 9, Keene-Roxbury, $1,200,000.

Grafton Co.—surf. treated gravel 1.5 mi. and one bridge N.H. 135, Monroe, $80,000.

road mix roadway 2.9 mi. and one bridge, US 3, Ashland-Holderness, $500,000.

Merrimack Co.—road mix roadway 2.4 mi. N.H. 114, Bradford, $300,000.

hot b. conc. roadway 1.1 mi. Main St., US 3 and N.H. 3A, Franklin, $225,000.

Merrimack Co.—hot b. conc. pavement 4 lanes divided 4.5 mi. and two bridges, Concord-Hopkinton, $2,800,000. Fay, Spofford & Thorndike, Inc., 11 Beacon St., Boston, Mass., consult. engrs. CD 10/4.

Rockingham Co.—road mix roadway 2.8 mi. N.H. 101, Greenland-Portsmouth, $425,000.

surf. treated gravel roadway 2.5 mi. N.H. 111, Atkinson-Hampstead, $275,000.

hot b. conc. roadway 2.3 mi. N.H. 101, Auburn, $350,000.

Strafford Co.—road mix roadway 0.5 mi. and overpass of Spaulding Turnpike, Rochester, $250,000.

surf. treated gravel roadway 1.5 mi. and overpass, Spaulding Turnpike, Rochester, $250,000.

road mix by. 2.6 mi., one bridge, N.H. 4, Dover-Rollinsford, $300,000.

EARTHWORK, WATERWAYS

▲ **Conn., Greenwich and N. Y., Rye**—Towns of Greenwich, Conn. and Rye, N. Y., flood control, Byram River, new 4-lane bridge, Post Rd., $574,000; Byram River, new 85 ft. channel, 62 ft. bridge, 15 ft. high at Comly Ave., Pemberwick, $390,000; Horseneck Brook, new Bridge St. Bridge, enlarge upstream channel to 200 ft., new bridge, Railroad Ave., eleven 9-ft. culverts under Railroad, $420,000; East Brothers Brook, 45 ft. channel upstream, 2 culverts at Post Rd., $/6,500; West Brothers Brook, four culverts at Post Rd., 45-ft. channel upstream, $111,700; Horseneck Brook channel widening at Post Rd., 3 culverts, $118,000; flood control, Strickland Bridge, dredge and widen channel at Post Rd., Barrier at River Rd., Cos Cob, $870,000; Strickland Brook, pumping station, capacity 1,560 cu. ft. per second, Mill Pond, near Post Rd., Cos Cob, $743,000. Gannett, Fleming, Corddry & Carpenter, Inc., 298 W. Putnam Ave., Greenwich, consult. engr.

PUBLIC BUILDINGS

▲ **Ala., Birmingham**—SCHOOL—City Bd. Educ., 2015 7 Ave. N., high school, South East Lake Section, $2,000,000. CD 12/20.

▲ **Calif., Arcata**—SPEECH-LITTLE THEATRE—State Div. Architecture, 1120 N St. Sacramento, Speech-Little Theater Bldg., Humboldt State College. $1,080,000. Constr. in 1957.

▲ **Calif., Berkeley**—STUDENT UNION—Bd. of Regents, University of California, Admin. Bldg., students union bldg., Telegraph Ave. and Bancroft Way, Union St. and Alton Way. $8,200,000. CD 3/31/49.

▲ **Calif., Glendale**—COUNTY COURTS—Los Angeles Co. Bd. Supervs., 501 Hall of Records, Los Angeles, plans by Arthur Wolfe, 2525 Hyperion Ave., Los Angeles, Zone 27, 2 story, 55,470 sq. ft. county courts bldg., Type III, Cap Proj. 7185. $1,034,000. Bids about Jan. 15, 1957. CD 1/27/54.

▲ **Calif., Indio**—HIGH SCHOOL—Coachella Valley Union High School Dist., Indio, plans by Rule, Deitz & Conkle, 283 Gilroy St., Los Angeles, rein.-con. Indio High School, 1st increment, incl. wings, admin. bldg., library, shop bldg., gymnasium. $1,500,000.

▲ **Conn., Woodbridge**—HIGH SCHOOL—Regional School Dist., 5 Lucy St., plans by Fletcher-Thompson, Inc., archt.-consult. engrs., 211 State St., Bridgeport, regional Junior High School for towns of Bethany, Orange and Woodbridge. $1,093,000. CD 10/17.

▲ **Fla., Miami**—SCHOOL—County Bd. Public Instruction, 275 N.W. 2 St., plans by Pancoast, Frendino, Skeels & Burnham, 927 Arthur Godfrey Rd., Miami Beach, Miami Beach Senior High School, Dade Blvd. and Praire Ave., $1,500,000. CD 6/14.

Idaho, Eagle—SCHOOL—Meridian School Dist., Meridian, defeated $730,000 bonds Dec. 11, high school. CD 11/30

Ill., Grays Lake—SCHOOL—Grays Lake Comm. High School Dist. 127, 400 N. Lake St., plans by Nicol & Nicol, 23 E. Jackson Blvd., Chicago, school addn. $580,000.

Ind., Portland—SCHOOL—Bd. Educ., Portland Wayne Twp. School Dist., plans by McGuire & Shook, Fletcher Trust Bldg., Indianapolis, high school, 14 classrooms, gym to seat 3,100, home economics rooms, music rooms, shop, adjacent to present school on E. Water St. $940,000. CD 5/23.

▲ **Mich., Ann Arbor**—CITY HALL—City, Fred J. Looker, city clk., bond election Feb. 18, city hall. $1,895,000. CD 11/10/53.

▲ **Mich., Flint**—SCHOOL, etc.—Bd. Educ., Beecher School Dist., voted bonds Dec. 4, school, gymnasium, swimming pool, $1,400,000. CD 10/24.

Mich., Haslett—SCHOOL—Bd. Educ., Haslett Schools, voted $850,000 bonds Dec. 8, high school. CD 12/5.

▲ **Mich., Northville**—SCHOOL—Bd. Educ., Northville Twp. School Dist., 501 W. Main St., plans by Elberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, high school. $2,450,000.

Minn., Aurora—SCHOOL—Bd. Educ., D. Cuzzo, clk., plans by Jyring & Whiteman, Hibbing, Junior High School. $800,000.

▲ **Minn., Lake City**—SCHOOL—Bd. Educ., LeRoy Wickstrom, clk., voted $1,475,000 bonds Dec. 7, elementary school and high school, Lang & Raugland, 802 Wesley Temple Bldg., Minneapolis, archts. (Correction—status). CD 12/13.

Mo., Ferguson—SCHOOL—Ferguson-Florissant School Dist. R-2, Virgil C. McCluer, supt. Schools, 200 Church St., $800,000 bond election Feb. 1, Walnut Grove School addn., and new school, Derhake Rd. Charles W. Lorenz, 700 N. Ballas Rd., Kirkwood, Zone 22, archt. CD 1/18.

Mo., St. Louis—AUDITORIUM—City, Frank C. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market Sts., Zone 3, plans by Murphy & Mackey, 4746 McPherson Ave., Zone 8, 2 story auditorium addn. to city art museum in Forest Park, $950,000. Bids early in 1957. CD 2/21/55.

▲† **N. J., Fort Monmouth**—CHAPEL—U. S. Eng., 111 E. 16 St., New York 3, N. Y., plans by Fellheimer & Wagner, 155 E. 42 St., New York, N. Y., chapel, $500,000-$1,000,000. CD 9/4.

▲ **N. J., Sparta**—SCHOOL—Bd. Educ., Sparta, Twp., plans by Alfonso Alvarez, 243 Loraine Ave., Upper Montclair, high school, Rte. 15. $1,400,000.

▲ **N. Y., Angola**—SCHOOL—Lake Shore Central School, Angola, plans by Earl Martin, 69 Elmwood Ave., Buffalo, elementary school at Angola, and school at Highland, $1,715,000. CD 12/19.

† **N. Y., Binghamton**—TRAINING CENTER—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Conrad & Cummings, 99 Collier St., Binghamton, army training center, $500,000-$1,000,000. Bids about Mar. 29.

▲† **N. Y., Buffalo**—TRAINING CENTERS—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by Michael J. DeAngelis, 522 Fifth Ave., New York, army training center, $500,000-$1,000,000. Bids about May 1; plans by Thomas H. McKaig, 881 Main St., Buffalo, army training center, $100,000-$500,000.

† **N. Y., Fort Totten**—QUARTERS—U. S. Eng., 111 E. 16 St., New York, Zone 3, 800 and cold storage warehouse, $500,000-$1,000,000. Cosentini Assoc., 237 First Ave., New York, consult. engrs. CD 8/30/56.

▲ **N. Y., Island Trees**—SCHOOL—School District No. 26, Stokes School, approved referendum vote on Dec. 15, high school, Byron Place, $3,750,000. CD 11/19.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, 3 story P. S. 138, 2060 Lafayette Ave., Proj. F-775, $1,890,000.

▲ **N. Y., Tonawanda**—SCHOOL—Bd. Educ., Tonawanda, plans by Pfohl & Stoll, 185 Niagara St., Buffalo, high school, on 26 acre plot, $2,951,000. CD 10/9.

▲ **O., Akron**—SCHOOLS—Bd. Educ., Springfield Local School Dist., 2966 Sanitarium Rd., Zone 12, plans by William Boyd Huff, 1050 North Main St., Zone 10, new schools and addn. to existing schools. $1,100,000. CD 11/12.

O., Fairborn—HIGH SCHOOL—Bd. Educ., Fairborn, plans by Walker, Norwick & Assocs., 12 W. Monument St., Dayton, 24 room high school addn. $588,900. CD 11/23.

▲ **Pa., Doylestown**—COURT HOUSE—Bucks Co., Doylestown, court house, $6,000,000. CD 8/6/51.

▲ **Tex., Odessa**—SCHOOLS—Ector County Independent School Dist., Odessa, voted bonds Dec. 15, group of school remodeling, $591,000; high school, $1,300,000, Wilson, Patterson & Assocs., 601 Bailey St., Fort Worth, archts.; Burnett and Cameron School addns., $700,000, Taylor & Devlin, Odessa, archts.; new elementary school, Blackshear and Ross School addns., $850,000, Groos & Clift, Odessa, archts; Reagan and Zavalla School addns., $700,000, Peters & Fields, Odessa, archts. CD 11/26.

COMMERCIAL BUILDINGS

Calif., Brentwood—RESIDENCE HALL—Mount St. Mary's College, 12001 Chalon Rd. W., Los Angeles, plans by Barker & Ott, 4334 W. Pico Blvd., Los Angeles, 5 story rein-con. residence hall. $700,000.

▲ **Calif., Fresno**—HOSPITAL—Sierra Hospital Building Headquarters, c/o Chairman, 853 Van Ness St., plans by Coates & Metz, Helm Bldg., 2 story, 60-bed Hospital. $1,000,000.

▲ **Calif., Lancaster**—DWELLINGS—L. J. Flaherty, 6327 Temple Blvd., Temple City, plans by Rosenthal Eng. Co., archt.-consult. engr., 257 S. Spring St., Los Angeles, new subdivision, pavements, curbs, sewers, etc. Tr. 20727, 27 acres. $1,140,000.

▲ **Calif., View Park**—HOUSING—Los Angeles Investment Co., 3450 Mount Vernon Dr., Los Angeles, plans by C. L. Mowder, 3450 Mt. Vernon Dr., Los Angeles, new subdivision, pavement, curbs, sewers, Tr. 21687, 45 acres. $1,410,000.

▲ **Conn., New London**—STUDENT-ALUMNAE CENTER—Connecticut College, Mohegan Ave., student-alumnae center, dormitory addns. to Katherine Blunt House. $1,600,000. Bids in spring.

Ind., Paradise—COUNTRY CLUB, etc.—Rolling Hills Country Club, c/o Wilfred Schroer, pres., Evansville, country club and golf course, 147 acre tract, near Paradise in Warrick Co., incl. pool clubhouse and golf course, $800,000.

▲ **Mass., Lincoln**—HOUSING—Contg. Officer, Air Force Cambridge Research Center, L. G. Hanscom Field, Bedford, plans by Desmond & Lord, 6 Beacon St., Boston, construct and finance 670 housing units, (Capehart), $11,055,000. Condgon-Gulney & Towle, Inc., 53 State St., Boston, consult. engr. Bids in Jan. CD 3/30.

▲ **Mass., Peabody**—SCHOOL, etc.—R. C. Diocese of Boston, Chancery Office, 1 Lake St., Brighton, plans by Maginnis & Walsh & Kennedy, 126 Newbury St., boston, Central Catholic High School, convent, Country Club Property, North Peabody, $2,500,000. CD 8/30/54.

N. Y., Fort Tilden—HOUSING—U. S. Eng., 111 E. 16 St., New York, Zone 3, plans by H. Kamenka, 101 Park Ave., New York, construct and finance Capehart Housing. $500,000-$1,000,000. Bids about May 7.

▲ **N. Y., New York**—OFFICE—American Jewish Com., 386 Fourth Ave., Zone 16, plans by Emery Roth & Son, 575 Madison Ave., New York, Zone 22, 8 story, brick, steel office, Third Ave. and E. 56 St. $1,100,000.

▲ **N. Y., New York**—SCHOOL—Sacred Heart of Mary School, 221 E. 71 St., Zone 21, girls' high school to be called Marymount School, Pelham Parkway and Eastchester Rd. $1,000,000.

Pa., Pittsburgh—APARTMENTS—Carnegie Institute of Technology, Schenley Park, plans by Franklin, Douden & Assocs., Century Bldg., Zone 22, two 3 story masonry married students apartments. $600,000. CD 12/5.

▲ **Tenn., Nashville**—SHOPPING CENTER—Robert C. Boyce, Jr., atty agent, Stahlman Bldg., plans by Cowan & Russell, Nashville Trust bldg., shopping center, 2,000-car parking facility. $18,000,000.

INDUSTRIAL BUILDINGS

▲ **Colo., Glenwood Springs**—PAPER MILL—J. & J. Rogers Co., 120 Wall St., New York, N. Y., plans by Alvin H. Johnson & Co., Inc., archt.-consult. engr., 415 Lexington Ave., New York, N. Y., cinder block, structural steel paper mill, incl. general facilities for mfr. of newsprint. $7,500,000. Bids in January.

Me., Kennebunk—BUILDING, etc.—Norton Portland Corp., Richard Oransky, publicity dir., 115 Sherman St., Portland, plans by Hanson & Chiesen, c/o owner, 1 K-shaped bldg., swimming pool, recreation center, Kimball Lane Research Center, 39 houses, landing strip for private aircraft, $800,000. Constr. in 1957.

▲ **Mass., Woburn**—PLANT, etc.—Sylvania Electric Products, Inc., C. A. Haines, dir. Facility Planning, 420 Market St., Williamsport, Pa., plans by Paul H. Van Wert, 699 Belmont St., Williamsport, Pa., 55,000 sq. ft. mfg. plant addn. and office. $800,000.

▲ **Okla., Oklahoma City**—WAREHOUSE—Bel-Aire Housing Corp., c/o Arthur Bird & Lloyd Denton, 602 Laramie St., San Antonio, Tex., 200,000 sq. ft. warehouse. $1,000,000. Richards-Conover Wholesale Hardware Co., lessee.

▲ **Okla., Oologah**—POWER PLANT—Public Service Co., 6 and Main Sts., Tulsa, 500,000 kw. steam power plant on Verdigris River. $20,000,000.

▲ **Pa., Erie**—PLANT—Erie Forge & Steel Co., Erie, plant addn. $4,000,000.

▲ **Tex., Houston**—PLANT—Shell Chemical Corp., Shell Bldg., expansion of isopropyl alcohol chemical plant on Houston Ship Channel. $3,500,000.

▲ **Va., Norfolk**—OPERATIONS CENTER—Colonial Stores, Inc., 321 Dunmore St., operations center, incl. general offices, warehouses, garage, bakery, meat plant, etc. $5,000,000. W. G. Bursnall, c/o owner, engr.

▲ **Wis., Milwaukee**—POWER PLANT—Wis. Elec. Power Co., 231 W. Michigan Ave., Zone 3, 5th unit of power plant, Oak Creek. $39,500,000, incl. equip. H. E. Mundt, c/o owner, engr. CD 11/22/50.

UNCLASSIFIED

▲ **California**—GAS PIPE LINE—Pacific Lighting Gas Supply Co., 810 S. Flower St., Los Angeles, 80.6 mi. gas pipe line between Buena Vista Lake to Newhalm, 405,000,000 cu. ft. daily capacity, Kern and Los Angeles Counties. $10,300,000.

▲ **O., Dayton**—FIELD HOUSE—Bd. Educ., 348 W. First St., field house near high school stadium for winter sports, graduations, concerts and other activities, $1,500,000. CD 1/11/55, under Public Buildings.

▲ **Alta., Calgary**—PARK EXPANSION—Calgary Exhibition & Stampede, Ltd., Administration Bldg., Exhibition Grounds, plans by Stevenson & Assocs., 344 12th Ave. W. Victoria Park expansion and imprvs., incl. combined exhibit bldg. and curling rink and new east and west addns. to main grandstand; grandstand imprvs. $3,000,000. CD 9/29/48.

Que., Montreal—TUNNEL—City, City Hall, tunnel under Canadian Pacific Ry. tracks, Masson St., between Iberville St. and Delorimier Ave. $500,000.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS

January 14 Connecticut — January 15 Massachusetts

BUILDINGS—BA

▲† **Mass., Ayer**—BARRACKS, etc.—BA 1/18—Purch. & Contg. Officer, Bldg. P-24, Ayer, Fort Devens, AI-19-035-57-55 (Eng) modernization of approx. 66 enlisted men's barracks, mess halls, Fort Devens. $1,100,000-$1,300,000. Plans deposit $50, refundable. CD 11/21.

▲ **Mass., Randolph**—SCHOOL, etc.—BA 1/22—Town, Town Hall, elementary school and site development, Liberty St. $1,000,000. Plans deposit $50, refundable. Colletti Bros., 687 Boylston St., Boston, archts. CD 7/20/56, under LB.

▲ **Massachusetts**—HOUSING IMPRVS.—BA 1/23—U. S. Eng., 150 Causeway St., Boston, construct and finance housing (Capehart) on-site work, Boston Defense area, Rehoboth, Swansea, Randolph, Bedford, Topsfield, Beverly and Hull, ENG-19-016-57-32. $1,000,000. Plans deposit $10, refundable. CD 10/24.

▲ **Rhode Island**—HOUSING IMPRVS.—BA 1/25—U. S. Eng., 150 Causeway St., Boston, Mass., Capehart Housing on-site imprvs. and utilities, Defense Area, Bristol, North Kingston, Foster, North Smithfield and Coventry, ENG-19-016-57-17. $1,518,000. Plans deposit $10. Creer, Kent, Cruise & Aldrich, 423 Industrial Bank Bldg., Providence, archts. CD 12/17, under LB.

▲ **Conn., Middletown** — INTENSIVE TREATMENT — BA 1/30—State P. Wks. Dpt., 165 Capitol Ave., Hartford, intensive treatment bldg., Connecticut State Hospital, Proj. BI-1-133, $4,000,000. Plans deposit $100. CD 4/16.

Conn., New Haven—FINE ARTS—BA 2/6—State P. Wks. Dpt., 165 Capitol Ave., Hartford, 2 story, masonry, steel Fine Arts Bldg., New Haven State Teachers College, Proj. BI-R-122B. $825,000. Plans deposit $50. Pedersen & Tilney, 111 Whitney Ave., archts. Henry A. Pfisterer, 111 Whitney Ave., engr. CD 3/14.

BUILDINGS—SLC

Conn., New Milford — PAPER MILL — Kimberly-Clark Paper Co., 128 N. Commercial St., Neenah, Wis., soon lets contract paper mill, Pickett Rd. $700,000. Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., archts. CD 12/13.

▲ **Mass., Boston**—GARAGE—United Shoe Machinery Corp., 140 Federal St., Boston, soon lets contract, garage, 80 High St. $1,000,000. Leland, Larsen, Bradley & Hibbard, 711 Boylston St., archts. CD 8/14.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Bayer-Mingolla Constr. Co., Inc., 550 Park Ave., Worcester, Mass. CA **$1,760,300**, est. $1,836,897. F-315 (8) hy. and bridge constr. Rte. 3, Chelmsford and Lowell. CD 11/16, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Central Constr. of Lawrence, Inc., and Henley Lundgren Co., 193 Hartford Pike, Shrewsbury, Mass. LB **$1,700,892**. F-120-11 constr. section state hy. at Freetown and Lakeville. Bids Dec. 27. CD 12/10.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
M. DeMatteo Constr. Co., 200 Hancock St., North Quincy, Mass. LB **$3,244,181**, est. $3,484,671. U-344 (7), hy. and bridge work Fall River Expressway Amvets Memorial Hy. Rte. 38, Canton-Stroughton. (**Correction**—low bidder). CD 12/21, under LB.

▲ **Petricca Constr. Co.**, 534 West St., Pittsfield, Mass. LB **$4,216,504**. Schedule 1, **$1,184,135**. Schedule 2, total $5,400,639. Unit No. 6 flood control at North Adams, CIVENG-30-075-57-12, MASSACHUSETTS. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Dec. 28. CD 12/7.

▲† **Theodore Loranger & Sons**, 404 Nash Rd., New Bedford, Mass. CA **$1,285,210**, est. $1,404,499. constr. addnl. storage facilities, Otis Air Force Base, Ordnance Storage Area, ENG-19-016-57-65, FALMOUTH, MASS. U. S. Eng., 150 Causeway St., Boston, Mass. CD 12/7, under LB.

RHODE ISLAND—State R. I. & Prov. Plants, Div. Purchase, State House, Providence,
General Eng. & Contg. Co., 12 Stukely St., Providence R. I., CA **$553,618**, substructure of Pawtucket Bridge No. 550, Contr. 1-RI Contr. 5654, F. A. Proj. 1-01 (9), Pawtucket, Providence Co. Bids Nov. 21. CD 12/6, under LB.

▲ **RHODE ISLAND**—State R. I. & Prov. Plants, Dpt. Admin., Joseph L. Byron, state purch. agt., 125 State House, Providence, Zone 2.
Harris Structural Steel Co., 419 4th Ave., New York, N. Y. CA **$2,521,043**. Contr. 2 RI Contr. 5655 superstructure for 5-span 700 ft. deck girder bridge, 109 ft. wide, incl. concrete deck slab, structural railing and hy. pavement, F. A. Proj. 1-0 (10), Pawtucket Bridge No. 550, Contr. 2, Pawtucket, Providence Co. Bids Dec. 5. CD 12/7 under LB.

▲† **Raymond Concrete Pile Co.**, 31 St. James Ave., Boston, Mass., and **B. Perini & Sons, Inc.** 73 Montvait Ave. Framingham, Mass., CA **$9,969,321**, est. $7,000,000. Pier No. 2 bulkhead and utilities, U. S. Naval Submarine Base, NBy-1, NEWPORT, R. I. First Naval Dist., 495 Summer St., Boston, Mass. Bids Dec. 14. CD 12/18, under LB.

CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,
Associated Constr. Co., 1010 Wethersfield Ave., Hartford, Conn., CA **$780,530**, three toll stations, Conn. Turnpike, Madison, Montville and Plainfield. Bids Dec. 10, awarded Dec. 24. CD 12/12, under LB.

BUILDINGS—LB & CA

▲ **O. D. Purrington Co., Inc.**, 49 Westminster St., Providence, R. I. CA **$1,205,417**. Alt. No. 1, U-101 PUBLIC HEALTH BLDG., University of Mass., AMHERST, MASS. State, University of Mass., Kenneth W. Johnson, pres., c/o Div. Bldg. Contr., 38 Chauncy St., Boston, Mass. CD 12/12, under LB.

▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass. CA **$2,184,843**, est. $2,000,000. U-602 CHEMISTRY LABORATORY addn., University of Mass., AMHERST, MASS. State, University of Mass., Kenneth W. Johnson, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. CD 12/4, under LB.

Bradley Constr. Co., Gordon Olch, 553 Blue Hill Ave., Milton, Mass. Owner Builds. **$750,000**. 50 RESIDENCES, Captain Jones Hill, HYDE PARK, MASS. Joseph Selwyn, 14 Linden Ave., Belmont, Mass., archt.

Walsh Constr. Co., Inc., 119 Webb St., Salem, Mass. LB **$889,681**. HOSPITAL addn. of wing, Highland Ave., SALEM, MASS. Salem Hospital, 81 Highland Ave., Salem, Mass. Bids Dec. 28. CD 12/12.

▲ **Thomas Constr. Co.**, 93 Austin Ave., East Haven, Conn., CA **$1,610,292**, est. $1,600,000. SENIOR HIGH SCHOOL, off East Main St., BRANFORD, CONN. Town Bd. Educ., Branford, Conn. Bids Dec. 5. CD 12/10, under LB.

▲ **E and F Constr. Co.**, 94 Welles St., Bridgeport, Conn. CA Approx. **$2,000,000**. Brookside SHOPPING CENTER, BRIDGEPORT, CONN. Brookside Shopping Center, 945 Main St., Bridgeport, Conn. CD 4/4.

▲ **Fabricio & Martin, Inc.**, 55 Railroad Ave., South Norwalk, Conn., CA, **$1,146,048**, JUNIOR HIGH SCHOOL, WILTON, CONN. Town, Town Hall, Wilton, Conn. Bids Nov. 20. CD 11/27, under LB.

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EN-1

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WET JOBS

#35 of a Series

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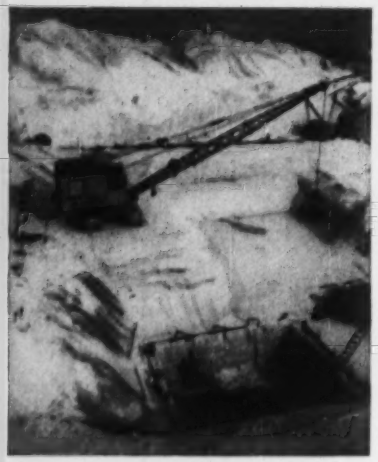
ELIMINATE
SHEETING

Harbison-Walker Brick Refractory, Hammond, Ind. — *Contractor:* Consolidated Engineering & Construction Co.



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MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES

January 18 Pennsylvania January 31 New York

STREETS AND ROADS

January 15, 22 Maryland January 18 Pennsylvania
January 31 New York

BUILDINGS—BA

▲ **Md., Jessup**—INSTITUTE—BA 1/15—State, Dpt. Pub. Imprvts., 506 Park Ave., Baltimore, Zone 1, concrete, steel, masonry Institute for Criminally Insane, $1,200,000. Plans deposit $50, Hopkins, Pfeiffer & Fenhagen, 10 E. Mulberry St., Baltimore, Zone 2, archts. V. R. P. Saxe, 1701 St. Paul St., Baltimore, Zone 2, struct. engr. Jas Posey, 10 E. Pleasant St., Baltimore, Zone 2, mech. engr. CD 6/27.

▲ **N. Y., Brooklyn**—SCHOOL—BA 1/29—Director, Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical work and lighting fixtures and electric passenger elevator for the new Sheephead Bay High School Batcheider and Coyle Sts., Aves. X and Y. Extended date. CD 11/28.

▲ **N. Y., New York**—MARINE TRANSFER STATION —BA 1/30—Dpt. Pub. Wks., Municipal Bldg., New York, Zone 7, constr. South Bronx Marine Transfer Station north shore of east River between Hunts Point Ave. and Farragut St., Bronx Boro, Contr. No. 1, structures, No. 2, electrical work, No. 3, heating and ventilating, No. 4 plumbing. Plans deposit $100.

▲ **Pa., Chester**—SCHOOLS—BA 2/5—Chester School Dist., Ninth and Crosby Sts., Junior High School (conversion of Clayton Elem. School), $1,000,000; Central Junior High School, $1,425,000, J. M. Blew & Sons, Media, archts. CD 3/9/55.

BUILDINGS—SLC

▲ **Pa., Phila.**—BANK AND OFFICE—Land Title Building Corp., c/o Albert M. Greenfield & Co., Inc., 1325 Walnut St., soon lets contract, modernization of bank and office, $4,500,000. Thalheimer & Weitz, 1325 Walnut St., Phila., archts. CD 12/19.

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Pa.—**Fort Pitt Bridge Works**, 212 Wood St., Pittsburgh, Pa. CA **$4,121,182.** superstructure for viaducts on eastbound and westbound parkway from Stanwick St. to B. & O. R.R. structure over Second Ave., incl 1.31 mi., parapet railing on existing retaining walls, superstructure and parapet railing constr. on 4 ramps, portion of Downtown interchange of the Parkway, Allegheny Co.;

Pa.—**United States Corp., American Bridge Div.**, 1236 Suburban Station Bldg., Phila., Pa. CA **$6,895,851.** 0.49 mi. proj., incl. paving decks and sidewalk of main span of Fort Pitt Bridge and constr. of the north and south approaches, incl. ramps, Allegheny Co. CD 12/11, under LB.

Charles O. Yale, Palmerton, Pa. CA **$854,181.** Contrs. 1 and 2, sewerage sys., sewage treatment plant, pumping station, force mains, sewers, SLATINGTON, PA. Slatington Sewage Auth., Slatington, Pa. CD 11/30, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Central Penna. Quarry Stripping & Constr. Co., 270 S. Pine St., Hazelton, Pa. CA **$1,594,280.** surf. 1.945 mi. relocation U. S. 40 from Gilpin easterly along west slope, Polish Mountain, A 464-7-620, Allegany Co. CD 12/27, under LB.

BUILDINGS—LB & CA

Harry & Aaran Kage, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$760,000.** 40 HOUSES on tract at Foster Ave. and E. 93 St., BROOKLYN, N. Y.

Sirob Realty Corp., 1221 E. Seventh St., Brooklyn 30, N. Y. Owner Builds. **$500,000.** 25 HOUSES, at 142 to 174 Bay 44 St. and 171 to 199 Bay 43 St., BROOKLYN, N. Y. Boris Jalkow, 2245 82 St., Brooklyn 14, N. Y., archt.

▲ **Bonnie Crest Homes**, c/o Coyle & Pacor, 2 W. Fordham Rd., New York 53, N. Y. Owner Builds. **$1,500,000.** 80 HOUSES on tract at Taymil Rd. near Lovell Rd., NEW ROCHELLE, N. Y.

▲ **Fairhaven Estates**, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica, N. Y. Owner Builds. **$1,400,000.** 75 HOUSES on tract on Divine Ave. east of Jackson Ave., SYOSSET, N. Y.

Key Constr. Co., 355 W. State St., Media, Pa. Separate Contracts. **$400,000,** RESIDENTIAL DEVELOPMENT, 40 units, Vernon St., MEDIA, PA. G. Harold Murphy, 1621 Sellers St., Phila., Pa., archt.

▲ **B. J. Lucarelli Co., Inc.**, 22 Orchard St., Jersey City, N. J., LB **$1,755,000** (8 bidders) construct and finance 200 units of Capehart HOUSING, ENG-30-075-57-1, FORT MONMOUTH, N. J. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Dec. 27. CD 12/20.

▲ **Charnwood Manor**, c/o Rudolph Novak, archt., 713 Main Ave., Clifton, N. J. Owner Builds. **$1,000,000.** 32 HOUSES on tract at Lafayette Rd. and Ehret Ave., HARRINGTON PARK, N. J.

▲ **Baltimore Contractors, Inc.**, 711 S. Central Ave., Baltimore, Md. CA **$2,147,000.** general constr., repair and alteration work for east wing of INFIRMARY for city hospital, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. CD 12/21, under LB.

▲† **John A. Volpe Constr. Co.**, 1507 M St. N. W., Wash., D. C. CA **$1,116,000.** addnl. ANIMAL RESEARCH FACILITY, National Institutes of Health, BETHESDA, MD. General Services Admin., Pub. Bldgs. Service, General Services Bldg., 19 and F Sts. N. W., Wash. 25, D. C. CD 8/7.

▲ **Chas. E. Brohawn & Bros.**, 200 Boundary Ave., Cambridge, Md. CA **$1,747,977.** concrete, steel masonry ADMINISTRATION and SERVICE BLDG., CAMBRIDGE, MD. Eastern Shore Public Service Co., Cambridge, Md. Malone & Williams, Lloyd & Harrison Sts., Salisbury, Md., archts.

▲ **Abraham B. Cohen**, 63-84 Saunder Dr., Rego Park, N. Y. Separate Contracts, **$5,000,000.** RESIDENTIAL DEVELOPMENT S. College Ave. vic., NEWARK, DEL.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES

January 10 Florida January 15 South Carolina
January 18 Tennessee

STREETS AND ROADS

January 15 South Carolina January 18 Tennessee

BUILDINGS—BA

Fla., Fort Lauderdale—PARKING GARAGE—BA 1/17—Burdines, Inc., c/o Weed-Russell-Johnson-Assocs., archts., 550 Brickell Ave., Miami, 3 story, 103x400 ft. parking garage, S. W. 1st Ave and W. Broward Blvd., Edward E. Ashley, 10 East 40 St., New York, N. Y., consult. engr. H. J. Ross Assocs., 3047 Biscayne Blvd., Miami, struc. engrs., Ramp Bldgs. Corp. 230 Park Ave., New York, N. Y. planning consult.

Va., Princess Anne—SCHOOL—BA 1/18—Princess Anne County School Bd., Court House, Larrymore Lawns Elementary School, $800,000. Plans deposit $50. Bernard B. Spigel, 200 Kresge Bldg., Norfolk, archt. CD 7/13.

BUILDINGS—SLC

▲ **Fla., Panama City**—HOUSING—Contracting Officer, Bldg. 209, soon lets contract, 420 family Housing units, Tyndall Air Force Base, INV-08-6-1-57-25. $4,200,000. CD 1/31/56.

Ky., Covington—SCHOOL, etc.—Catholic Diocese of Covington, Madison Ave., soon lets contract, 1 story, bsmnt., brick, stone school chapel on Dudley Pk., $575,000. Extended date. Betz & Bankemper, Scott St., archts. Maxfield & Edwards, Coppin Bldg., engrs. CD 12/7.

HEAVY CONSTRUCTION—LB & CA

† **Greenhut Constr. Co.**, Box 1175, Pensacola, Fla. CA **$514,069.** offices quarters bldg. and airmens dormitory, Hurlburt Air Force Base, (Elgin Aux. No. 9) ENG-01-076-57-27, HURLBURT AIR FORCE BASE, FLA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Dec. 13. CD 12/20, under LB.

▲† **T. L. James & Co.**, Box 531, Ruston, La. CA **$11,747,419.** constr. Port Allen Lock about 1 mi. south of Port Allen, Inv. 57-72, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Dec. 7, awarded Dec. 23. CD 12/11, under LB.

Chris Larsen Co., 900 Maritime Bldg., New Orleans, La. LB **$859,714** (7 bidders) open air theater in city park, NEW ORLEANS, LA. Bd. Levee Comn., Orleans Levee Dist., Royal and Conti Sts., New Orleans, La. Bids Dec. 11. CD 11/19.

BUILDINGS—LB & CA

▲ **Uteck Corp.** (Henry C. Beck Co., Atlanta, Ga.), Fulton National Bank Bldg., Atlanta, Ga., and **Utah Constr. Co.**, 100 Bush St., San Francisco, Calif. LB **$12,178,620.** Lease-purchase project. COMMUNICABLE DISEASE CENTER, 6 bldgs., near Emory University Campus, ATLANTA, GA. General Service Admin., Peachtree-Seventh Bldg., Atlanta, Ga. Bids Dec. 28. CD 12/27.

▲ **Continental Hotels, Inc.**, c/o Bud Minds, 716 N. Federal Hy. Owner Builds. **$1,700,000.** 2 and 5 story, 250x410 ft. HOTEL, RIC CB-5, Galt Ocean Dr., FORT LAUDERDALE, FLA. MacKay & Gibbs, 927 41st St., Miami Beach, Fla., archts. CD 12/4.

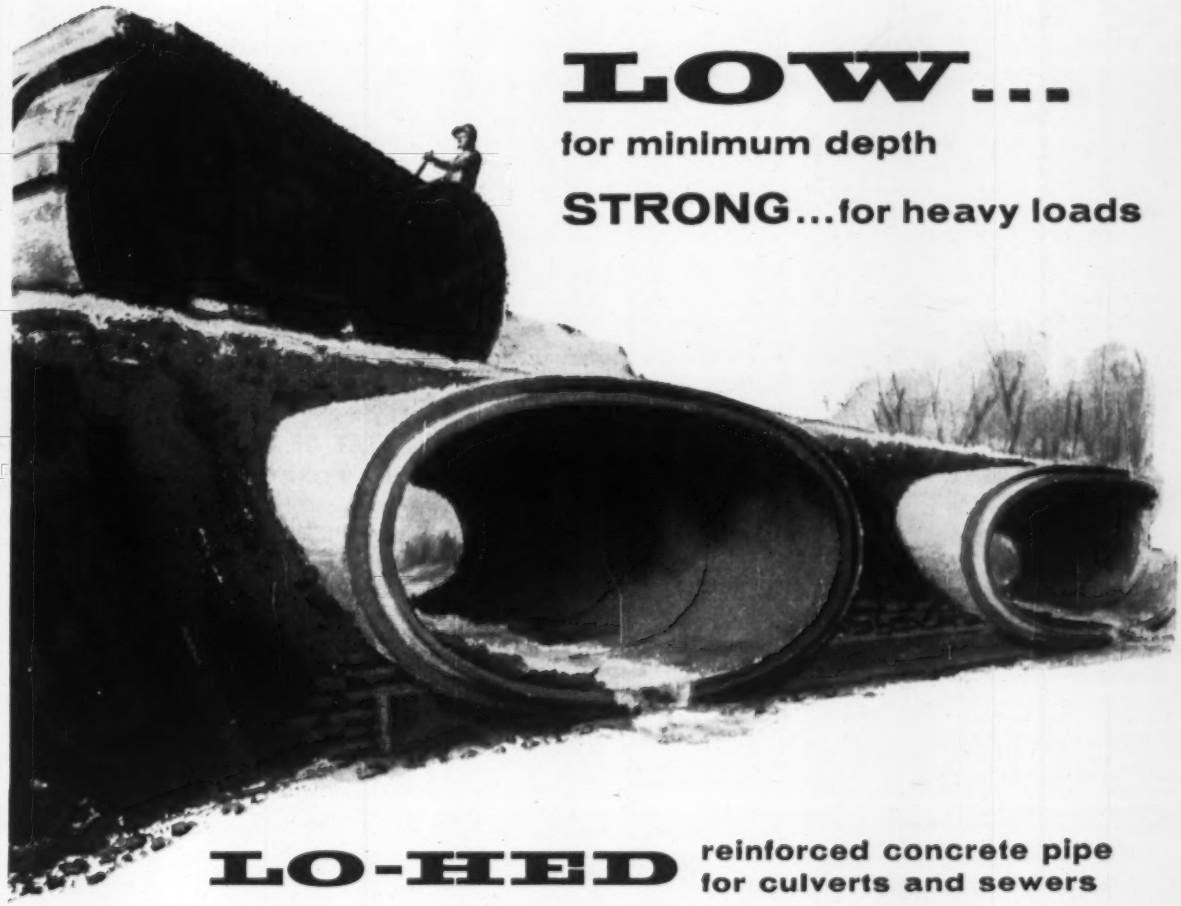
Lomar Constr. Corp., 423 W. 29 St., Hialeah, Fla., CA. **$587,000.** 52 RESIDENCES, (addn.) Westhaven Heights, HIALEAH, FLA. Mark Land Co., 423 W. 29th St., Hialeah, Fla. Wahl Snyder, 1177 N.E. 79 St., Miami, Fla., archt.

Clearwater Constr. Co., 1120 Eldridge St., Clearwater, Fla., LB. **$592,497.** Largo HIGH SCHOOL, LARGO, FLA. County Bd. Public Instruction, Courthouse, Clearwater, Fla. Bids Dec. 19. CD 12/19/56.

Thompson-Poizzi Constr. Co., 298 Granello Ave., Coral Gables, Fla., LB **$515,218.** Southwest Miami HIGH SCHOOL addn., 8855 S. W. 50 Terrace, Dade Co., MIAMI, FLA. Dade Co. Bd. Public Instruction, 275 N. W. 2 St., Miami, Fla. Bids Dec. 19. CD 11/30.

▲ **Cal Kovens Constr. Co.**, 1657 West Ave., Miami Beach, Fla., CA **$10,000,000.** 14 story HOTEL, 500

(Continued on page 96)



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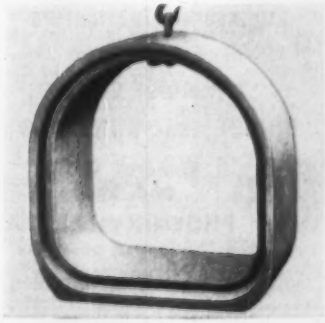

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Here Weld-Crete was used to bond new ¾" concrete topping directly to old, badly chipped and spalled floor slab which had been subjected to ceaseless heavy truck traffic. Plant shut-down time eliminated as Weld-Crete enabled National's own mechanics to do job over week end.

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Erectors

Structural Steel

BRIDGES and BUILDINGS

General Office and Shops

PHOENIXVILLE, PA.

Subsidiary—Barium Steel Corporation

GUNITE

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SAND AND CEMENT

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3206 HOUSTON, HOUSTON 9, TEXAS

3508 PARKWAY DRIVE, ST. LOUIS 4, MO.

Milwaukee and Twin Cities Denver New Orleans

(Continued from page 94)

rooms, 6861 Collins Ave., MIAMI BEACH, FLA. Kaskell Corp., c/o Norman M. Giller & Assocs., archts., 420 Lincoln Rd., Miami Beach, Fla. CD 12/4.

▲ **C. A. Fielland, Inc.**, Box 2678 N. Rome Ave., Tampa, Fla., CA $1,303,600. CITY HALL, W. South St. and S. Orange St., ORLANDO, FLA. City, City Hall, Orlando, Fla. Bids Nov. 21. CD 11/27, under LB.

▲ **George A. Caldwell**, Box 477, Baton Rouge, La. LB $1,172,632, est. $1,100,000 (5 bidders) 4 story, bsmnt. East Baton Rouge Parish COURTHOUSE addn., alterations, BATON ROUGE, LA. City and Parish of East Baton Rouge, Baton Rouge, La. Bids Dec. 20. CD 12/3.

▲ **The Fluor Corp., Ltd.**, 2500 S. Atlantic Blvd., Los Angeles, 22, Calif. CA $20,000,000. design and construct electrolytic chlorine-caustic mfg. PLANT, GEISMAR, LA. Wyandotte Chemicals Corp., Alkali Square, Wyandotte, Mich. CD 9/17.

▲ **Farnsworth & Chambers Co., Inc.**, Box 332, New Orleans, La. LB $1,830,000 (5 bidders) 2 story brick, concrete Belle Chasse HIGH SCHOOL, POINTE A LA HACHE, LA. Plaquemines Parish School Bd., Pointe a la Hache, La. Bids Dec. 18. CD 10/25.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **O., Cleveland**—BA 1/18—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, Zone 14, Contrs. C-1, C-2, C-3, and C-4, general constr., plumbing, heating, ventilating and electrical equip. for pump bldg. at Clague Rd. filtration plant, $4,500,000, Plans deposit $100; Contr. C-5, raw water pumping equip. Contr. C-6, filter water pumping equip. for Clague Rd. filtration plant, $500,000, Plans deposit $25. Havens & Emerson, 640 Leader Bldg., Zone 14, engrs. CD 11/30.

Wis., Green Bay—STADIUM—BA 1/21—City, City Hall, concrete, steel stadium, $939,200. Plans deposit $40. John E. Somerville, 403 W. Walnut St., archt. CD 4/17/56.

BUILDINGS—BA

Wis., Brookfield—SCHOOL—BA 1/17—Union Free High School Dist. 1, 16450 W. Capitol Dr., high school addn. $800,000. Extended date. Grassold-Johnson & Assoc., 734 N. Jefferson St., Milwaukee, Zone 2, engrs. CD 12/4.

▲ **Mich., Wayne**—SCHOOL—BA 1/21—Bd. Educ., Wayne Community School Dist., 3714 S. Wayne Rd., Franklin Junior High School, Howe and Annapolis Sts. $2,500,000. Plans deposit $25, refundable, Yamasaki, Leinweber & Assoc., 103 W. Fifth St., Royal Oak, archts. CD 3/1.

HEAVY CONSTRUCTION—LB & CA

▲ **Hedges Constr. Co.**, 5915 N. Rogers Ave., Chicago, Ill. CA $2,782,975. Calumet Skyway Toll Bridge, Sec. 1-B-2, comp. struc., drainage, embankments, paving, etc. State St. to Keefe Ave., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Dec. 18. CD 12/19, under LB.

▲ **Wm. E. Schweitzer & Co.**, 2207 Dodge Ave., Evanston, Ill., CA $1,561,386. Clavey Rd. sewage treatment plant, Clavey Rd. and County Line Rd., Deerfield-WAUKEGAN, ILL. North Shore Sanitary Dist., Dahringer Rd., Waukegan, Ill. Greeley & Hansen, 220 S. State St., Chicago, Ill., engrs. Bids Dec. 13. CD 12/31, under LB.

Tomaro Contg Co., 2727 E. Layton Ave., Cudahy, LB. $519,928. (3 bidders), storm sewer S. 44th St., WEST MILWAUKEE, WIS. Village, Village Hall, West Milwaukee, Wis. Bids Dec. 20. CD 11/28.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Sargent Constr. Co.**, 2840 Bay Rd., Saginaw, Mich. CA $1,395,765, est. $1,480,000. single and dual 24 ft. c. conc. 8.081 mi. M-78 from west county line northeast, Shiawassee Co.; CA $1,184,114. 24 ft. conc. 5.966 mi. southbound lane concrete base wid'n. US-27, Gratiot Co.;

Mich.—**Darin & Armstrong, Inc.**, 2041 Fenkell St., Detroit, Mich. CA $1,018,564, est. $1,050,000. 0.682 mi. alt. utilities sewers, water mains, lighting, tunnel, surf. service roads, Edsel Ford Expressway, Wayne Co.;

Mich.—**Hertel Deyo Co. & C. E. Utterback Co.**, 5205 Division St. S., Grand Rapids, Mich. CA $874,496, est. $930,000. dual 24 ft. conc. 1.396 mi. US-31, Emmet and Cheboygan Counties. Grand total $4,472,939. CD 12/18, under LB.

▲† **Marine Operators, Inc.**, (Al Johnson Constr. Co., Peter Kiewit Sons Co., Cunningham Kiewit Co. and Morrison-Knudsen Co., Inc.), 608 Foshay Tower, Minneapolis, Minn. CA $6,635,596 (2 bidders) Sect. 3, dredging Amherstburg Channel, Detroit River, Wayne Co., MICHIGAN. U. S. Eng., 600 E. Jefferson St., Detroit, Mich. CD 12/21, under LB.

Great Lakes Dredge & Dock Co., Williamson Bldg., Cleveland, O. CA $6,566,040. Sect. 4. (Michigan).

BUILDINGS—LB & CA

▲ **K. H. Mitchell Constr. Co.**, Poland, O., CA Est. Over $3,000,000. 136 HOMES to be known as Frontier Town, East of POLAND, O. Frontier Development Corp., K. H. Mitchell, pres., Poland, O.

▲ **Plaza Builders, Inc.**, 2620 Market St., Youngstown, O., CA Est. $2,100,000. SHOPPING CENTER, incl. 28-store center, 20-acre site bounded by Station St., Aurora Rd., Solon Blvd. and Melbury Ave., and parking area, SOLON, O. Solon Square, Inc., c/o Edward J. DeBartolo, 2620 Market St., Youngstown, O. CD 2/20

▲ **H. Kaplan Co.**, 125 W. Hubbard St., Chicago, Ill., CA $1,000,000. 115,000 sq. ft. FACTORY, aircraft parts and assembly plant, 17 acre site on Franklin Rd. near 30th St., INDIANAPOLIS, IND. Josa Corp., c/o H. B. American Machine Co., Midwest Div., 1450 E. 19th St., Indianapolis, Ind. Philip Koenig, 111 W. Washington St., Chicago, Ill., archt.

▲ **Blank & Anderson Constr. Co.**, 428 N. Michigan Ave., South Bend, Ind., CA $1,024,051. 2 story South side ELEMENTARY and JUNIOR HIGH SCHOOL, 1600 & 1700 S. Main St., MISHAWAKA, IND. School City of Mishawaka, 126 N. Church St., Mishawaka, Ind. Maurer & Maurer, 312 Lafayette Bldg., South Bend, Ind., archts. Bids Dec. 13. CD 12/31, under LB.

▲ **Arthur G. McKee Co.**, 230 Chester St., Cleveland, O., CA Est. $10,000,000. 3rd unit ULTRAFORMER, 21,000 bbl. per day capacity, WHITING, IND. Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago, Ill.

▲ **Korndoerfer & Salvano, Inc.**, 1415 Hampden Pl., Racine, Wis., CA $1,086,308. general contract. E. H. Wadewitz ELEMENTARY SCHOOL and ORTHOPEDIC WING, RACINE, WIS. Bd. Educ., Racine, Wis. Bids Dec. 19. CD 11/23.

▲ **Barton-Malow Co.**, 2631 Woodward St., Detroit, Mich. CA Est. $1,500,000. HIGH SCHOOL, west side, Greenfield South of Joy St., DETROIT, MICH. Detroit Lutheran High School Development, 5040 Joy St., Detroit, Mich. Bids Nov. 30. CD 11/20.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

January 16 Arkansas — January 22, 23, Texas

STREETS AND ROADS

January 16 Arkansas — January 22, 23 Texas

BUILDINGS—BA

Minn., St. Paul—SCHOOL, etc.—BA 1/17—St. Casimir's Church, 934 Geranium Ave. E, school and convent addns., at Jessamine Ave. and Forest St. $500,000. Haarstick, Lundgren & Assocs., N. 212 First National Bank Bldg., St. Paul, archts. CD 6/22.

▲ **Okla., Stillwater**—AGRICULTURAL—BA 1/22—Oklahoma A & M College, Stillwater, agricultural bldg. for A & M College. $1,000,000. Phil Wilbur & Assocs., Stillwater, archts. CD 11/2/55.

▲ **Tex., Midland**—SCHOOLS—BA 1/24—Midland Independent School Dist., Midland, Junior High School and two elementary schools, masonry, concrete haydite block. $1,500,000. Plans deposit $25 each for Junior High and 2 elementary schools. Preston W. Geren, 1607 Fort Worth Natl. Bldg., Fort Worth, archt. CD 10/30.

▲ **Kan., Topeka**—HOUSING—BA. 1/25—Procurement Office, Forbes Air Force Base, Topeka, construct and finance 640 housing units (Capehart) Forbes Air Force Base, $7,500,000. Williamson-Loebsack & Assoc., 2015 Gage St., archts. CD 11/8.

Minn., Spring Valley—SCHOOL—BA 2/20—Bd. Educ., Independent Consolidated School Dist. No. 112, K. Moon, chn., 2 story, bsmnt., 310 ft. long high school. $600,000. J. J. Flad & Assocs., Winona, archts. CD 4/16.

HEAVY CONSTRUCTION—LB & CA

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck,

N. D.—**Alexander Constr. Co.**, 46-41 Hiawatha Ave., Minneapolis, Minn., CA $838,695, base, b. conc. surf. 21.197 mi. US 2 from Ray West, Prop. F-73 (8), Williams Co. CD 12/21, under LB;

N. D.—**Wm Collins & Sons**, Fargo, N. D., CA $182,628, tr. serv. grav. and incid. 7.408 mi. US 52 from Minot east and west, Proj. F-693 (1), Ward Co. CD 12/21, under CA.

▲† **Guy H. James Constr. Co.**, Box 9575, Oklahoma City, Okla. CA, $2,095,041, Helena Valley Tunnel and canal, Sta. 3 plus 14.30 to 149 plus 00, Helena-Great Falls Division, Missouri River Basin Proj., DC 4782, MONTANA. Bureau Reclamation, Dpt. Interior, Govt. Camp, Canyon Ferry, Mont. CD 11/29, under LB.

† **WYOMING**—Bureau P. Rds. Dpt. Commerce, Room 242, Bldg. 40, Denver Federal Center, Denver, Colo., **Eagle Constr. Co., Inc.**, P. O. Box 1496 Boise, Idaho. CA $694,644, est. $751,440. grading 3.2 mi. Buffalo Tensleep, Wyo. Proj. 10-C-6, Washakie Co. Bids Dec. 19. CD 12/4.

▲† **Brown-Olds Plumbing & Heating Co.**, Box 1215, Colorado Springs, Colo., LB $1,067,800, gas and electrical distr. sys., Air Force Academy, Inv. 05-613-57-11, COLORADO SPRINGS, COLO. Dpt. Air Force, Air Force Academy Constr. Agency, Box 1670, Colorado Springs, Colo. Bids Dec. 27. CD 12/13.

† **Geo. A. Rutherford, Inc.**, 915 Hazeldine Ave. S. E., Albuquerque, N. M. CA $846,290. laboratory, Kirtland Air Force Base, ENG-29-0057-57-27, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Nov. 30. CD 10/31.

▲† **Ramsey-Leftwich**, Box 559, Lubbock, Tex. CA $1,173,000. four 3 story airmen's dormitories, Walker Air Force Base, ENG-29-065-57-27, ROSWELL, N. M. U. S. Eng., Box 1538, Albuquerque, N. M.

BUILDINGS—LB & CA

▲ **Meinecke-Johnson Co.**, 5 N. 14 St., Fargo, N. D. CA, $1,796,000, general constr. two JUNIOR HIGH SCHOOLS in Moorhead and ELEMENTARY SCHOOLS in Sabin and Georgetown, MOOREHEAD, MINN. Bd. Educ., Independent School Dist. No. 122, A. C.

Halmrast, clk., Moorhead, Minn. CD 12/27, under LB;
R. Gibb & Sons, Inc., 115 N. 5 St., Fargo, N. D. CA, **$503,756**, mechanical work (Moorhead, Minn.).

▲ **Weitz Co., Inc.**, 406 Fleming Bldg., Des Moines 9, Iowa, CA **$1,237,421**. six concrete walled process structures and installing utilities, roads and fencing Iowa Ordnance PLANT, BURLINGTON, IOWA, Atomic Energy Comn. and Mason & Hanger-Silas Mason Co., Inc., P. O. Box 561, Burlington, Iowa. Bids Nov. 20. CD 12/12, under LB.

▲ **Donovan Constr. Co.**, 1725 Carroll St., St. Paul, Minn. LB **$1,690,630** (2 bidders) lease-purchase project, constr. POST OFFICE and COURTHOUSE, COUNCIL BLUFFS, IOWA, General Services Admin., 2306 E. Bannister Rd., Kansas City, Mo. Bids Dec. 28. CD 12/27.

▲† **Maggi Constr. Co.**, Rolla, Mo. CA **$2,878,720**. renovation of ARMY BARRACKS, FORT LEONARD WOOD, MO. Post Purchasing & Contg. Officer, Fort Leonard Wood, Mo. Bids Dec. 29. CD 12/4;
Debo-Midwest Constr. Co., Devils Elbow, Mo. CA **$715,728**. renovation of dining rooms (Fort Leonard Wood, Mo.).

† **Bob Eldridge Constr. Co.**, 3206 Strong Ave., Kansas City, Kan. LB **$630,547**. (17 bidders) 46,000 sq. ft. Naval and Marine Corps TRAINING CENTER, Brush Creek Blvd. and Benton St. bordered by Agnes Ave. on west side, KANSAS CITY, MO. District Pub. Wks. Office, Ninth Naval Dist., Bldg. 1-A, Great Lakes, Ill. Bids Dec. 26. CD 11/29.

▲ **Fruin-Colnon Constr. Co.**, 1706 Olive St., St. Louis, Mo. CA Est. **$14,000,000**. 1,500,000 bbl. annual capacity cement PLANT, ADA, OKLA. Ideal Cement Co., Denver National Bank Bldg., Denver, Colo. Bids Dec. 17. CD 11/21.

▲ **Foster Wheeler Corp.**, 165 Broadway, New York, N. Y. CA Est. **$25,000,000**. installing 100,000 b/d crude distillation unit at REFINERY, BEAUMONT, TEX. Magnolia Petroleum Co. (Socony-Mobil), South Beaumont, Tex.

▲ **Fort Worth Builders**, 3617 Vaughn Blvd., Fort Worth, Tex. CA **$1,680,600**. construct and finance 125 housing units (Capehart) vicinity of Gray Air Force Base, KILLEEN, TEX. U. S. Eng., 11 W. Vickery Blvd., Fort Work, Tex. CD 9/20.

Grobe & Doremus Process Co., 4601 Stanford St., Houston, Tex. CA **$750,000**. design and construct uniformer-catformer unit to GASOLINE REFINERY, WHITE DEER, TEX. Dorchester Corp., White Deer, Tex. CD 12/31.

▲ **C. B. Lauch Constr. Co.**, 5404 Cedar St., Boise, Idaho. LB **$929,000** general constr. East JUNIOR HIGH SCHOOL, GREAT FALLS, MONT. School Dist. No. 1, Great Falls, Mont. Bids Dec. 12. CD 11/30;
Mehl Plumbing & Heating Co., 815 Central Ave., Great Falls, Mont. LB **$660,000**. mechanical work (Great Falls, Mont.).

▲† **Platt Rogers Constr. Co.**, 2501 Wood Ave., Colorado Springs, Colo. CA **$1,392,425**. BARRACKS, BOQ's, MESS HALL modernization, Inv. AV 05-010-57-20, CAMP CARSON, COLO. U. S. Eng., Bldg. T-350, Camp Carson, Colo. Bids Dec. 20 awarded Dec. 24. CD 12/14.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
January 23 California
STREETS AND ROADS
January 23, 24, 30, 31 California

BUILDINGS—BA

Utah, Ogden—SCHOOL—BA 1/24—Ogden School Dist., 2351 Grant Ave., Hillcrest Elementary School, 7th and Van Buren Aves. $570,000. John Piers, 2726 Harrison Blvd., archt. CD 10/4.

HEAVY CONSTRUCTION—LB & CA

▲ **UTAH**—State Rd. Comn., State Capitol, Salt Lake City,

Utah—Industrial Constr., 1001 Shadow St., Las Vegas, Nev. LB **$785,295**. 2½ in. bit. road mix surf. sect. of F.A. Rte. 35 between 9 mi. east of Paria Creek and Utah-Ariz. line, Proj. F.L.P. 32 (1) and S.P. 1583, Kane Co.;

Utah—Floyd S. Whiting, 185 Gordon Lane, Murray, Utah. LB **$953,088**. plant mix bit. surf. 5.809 mi. U.S. 30-S between Hmefer and Devils Slide, Proj. F 023-1 (1), Morgan and Summit Counties. Bids Dec. 21. CD 12/13.

▲† **R. A. Heintz Constr. Co.**, 211 N. E. Columbia Blvd., Portland, Ore., CA **$1,074,345**. constr. Howard Prairie Dam, Rouge River Basin Proj., Talent Div., Spec. DC 4777, OREGON. Bureau Reclamation, Dpt. Interior, Camp White, Ore. Bids Nov. 27. CD 12/4, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

A. Teichert & Son, Inc., 1931 Stockton Blvd., Sacramento, LB **$1,987,320** (4 bidders) grading, paving 5.6 mi. Freeway on US 99 between 1.8 mi. south of Cosumnes River and 0.2 mi. south of Elk Grove Rd., incl. 7 structures, Sacramento Co. Bids Jan. 2. CD 12/5.

Charles J. Dorfman, 124 N. LaBrea St., Los Angeles, Calif., LB **$696,881**, est. $505,904 (8 bidders) sanitary sewers, Greenfield Dr., EL CAJON, CALIF. City Council, City Hall, El Cajon, Calif. Bids Dec. 17. CD 11/23.

† **McDonald Bros. Constr. Co.**, 2639 S. LaCieniga St., Los Angeles, Calif., LB **$629,884**, est. $700,000. organizational hangar, Oxnard Air Force Base, ENG-04-353-57-41, OXNARD, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Dec. 20. CD 12/5.

Lentz Constr. Co., 2416 Sutterville Rd., Sacramento, Calif., LB **$673,843**, est. $637,174 (6 bidders) East Broadway Storm Drainage Facilities, SACRAMENTO, CALIF. City, City Hall, 9 and I Sts., Sacramento, Calif. Bids Dec. 27. CD 12/12.

BUILDINGS—LB & CA

▲ **Quality Builders**, P. O. Box 1503, Tacoma, Wash. LB **$1,645,158**. (7 bidders), repairs to temporary-type BARRACKS, repairing MESSHALL and electrical constr. Inv. 57-101, FORT LEWIS, WASH. Dpt. Army, Purch & Contg. Officer, Fort Lewis, Wash. CD 8/30.

Mutual Steel Constr., Inc., 140 N. La Brea St., Los Angeles, Calif., CA **$650,000**. 3 story STORE, 9700 Wilshire Blvd., BEVERLY HILLS, CALIF. Wilshire Bldg. Corp., 404 N. Roxbury Dr., Beverly Hills, Calif. William S. Beckett, 9026 Melrose St., Los Angeles, Calif., archt.

Arnold Home Builders, 1501 6th St., Cabrillo Mesa, Calif., CA **$551,400**. 47 frame, stucco, masonry veneer, redwood DWELLINGS, CABRILLO MESA, CALIF. Cabrillo Mesa Development Co., 1501 6th St., Cabrillo Mesa, Calif.

H. H. Johnson Constr. Co., P.O. Box 111, Chula Vista, Calif. CA **$517,520**. 50 DWELLINGS, Clairemont Tr. 7, CLAIREMONT, CALIF. Hobart Enterprises, 856 "G" St., Chula Vista, Calif.

▲ **Barrett Constr. Co.**, Evans Ave. and Rankin St., San Francisco, Calif. CA Est. **$1,400,000**. 160,000 sq. ft. structural steel PLANT, FREMONT, CALIF. Kroehler Mfg. Co., Naperville, Ill. John Sardis & Assocs., 347 Clay St., San Francisco, Calif., archts.

▲† **McDonald Bros.**, 3639 LaCienega Blvd., Los Angeles, Calif. LB **$3,378,360**. concrete block, masonry, steel MANUFACTURING BLDG., ADMIN. BLDG., NIMBUS, CALIF. Aerojet General Corp., 410 N. Citrus Ave., Covina, Calif.

Nylin P. Hurd, 1317 Santiago Ave., Santa Ana, Calif. CA **$715,667**. 40,000 sq. ft. LaMirada SCHOOL No. 7, NORWALK, CALIF. Norwalk City School Dist., 12152 E. Walnut St., Norwalk, Calif. Bids Nov. 29, awarded Dec. 19. CD 12/10, under LB.

▲ **Thomas Companies**, 2486 Huntington Dr., San Marino, Calif. Owner Builds. **$1,800,000**. 108 DWELLINGS, Foxholm St., PALMDALE, CALIF.

▲ **A. E. Pelton**, 1527 E. 14 St., San Leandro, Calif. Owner Builds. **$1,500,000**. Pelton SHOPPING CENTER, incl. supermarket, 15 small stores and parking facilities, SAN LEANDRO, CALIF.

Kretz & Wilson, 83-601 Hy. 99, Indio, Calif. LB **$538,582**. HIGH SCHOOL addns., TWENTYNINE PALMS, CALIF. Victor Valley Unified School Dist., 16248 Desert Knoll Dr., Victorville, Calif. Bids Dec. 21. CD 12/14.

▲ **Kaiser Engineers Div. of Henry J. Kaiser Co.**, 1924 Broadway, Oakland, Calif., CA Est. $3,000,000. 12,000 b/d PLATINUM CATALYST REFORMER at refinery, WILMINGTON-DOMINGUEZ, CALIF. Shell Oil Co., 50 W. 50 St., New York, N. Y.

Floyd R. Locke, 3043 Casitas Ave., Los Angeles, Calif. LB **$532,848**, est. $450,000. (11 bidders) Constr. 2, FUEL TESTING LABORATORY and sys., VAN NUYS, CALIF. Marquardt Aircraft Co., 16555 Saticoy St., Van Nuys, Calif. Bids Dec. 19. CD 12/26.

▲ **Kemp Bros.**, 8750 Mettler St., Los Angeles, Calif. CA **$2,032,000**, est. $2,000,000. 119,920 sq. ft. rein.-brick HIGH SCHOOL NO. 5, 11 bldgs., WHITTIER, CALIF. Whittier Union High School Dist., 12100 E. Washington Blvd., Whittier, Calif. CD 12/26, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
January 23 Ontario

BUILDINGS—BA

▲ **N. B., Fredericktown**—HOUSING—BA 1/15—Defence Construction (1951) Ltd., 56 Lyon St., Ottawa, Ont., 191 Class I and II D.N.D. housing units with related services at married quarters area, Camp Gagetown Army Camp, $1,000,000, Wiggs Walford, Frost & Lindsay, 4350 Sherbrooke St. W., Montreal, Que., engrs.

BUILDINGS—LB & CA

▲ **George A. Crain & Sons, Ltd.**, 555 Cambridge St., Ottawa, Ont., CA **$1,365,550**, Dpt. P. Works TESTING LABORATORY, Riverside Dr., OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Awarded Dec. 20. CD 12/5.

Eastern Constr. Co., Ltd., Box 96, Walkerville, Ont., CA Est. about **$800,000**. (10 bidders) 2 story, full bsmt., 125x180 ft., rein.-con., steel, brick STORE and OFFICE, TORONTO, ONT. Dominion Stores Ltd., 605 Rogers Rd., Toronto, Ont. Bids Dec. 6. CD 11/27.

(Proposal Advertisements see pp. 112 to 114)

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Not a paint . . . ART-ROC troweled into the cement surface holds attractive colors safe from attack by cleansers, alkalis or rust. Provides a tough extra-hard surface at no extra cost . . . both for interior and exterior installations. Floors or pavements with ART-ROC are bright and attractive . . . easy to clean, economical to keep up.

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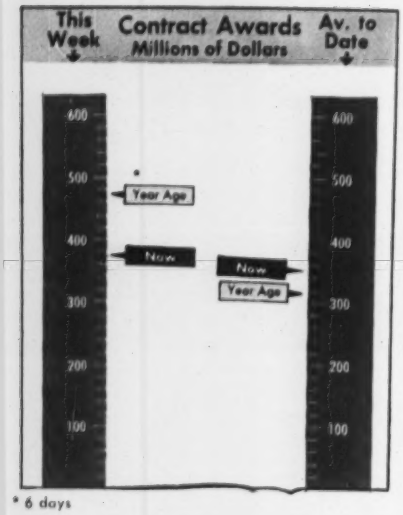
Construction Scoreboard

Activity this Week



* 6 days

AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 2 wks 1957	Chge %
	millions		
Federal	$77.3	$117.8	+19
State and Municipal	132.7	271.1	+12
Total Public	210.0	388.9	+14
Total Private	166.1	310.9	+10
U. S. Total	$376.1	$699.8	+12
By Type of Work			
Waterworks	$2.1	$3.2	−71
Sewerage	13.2	19.8	+9
Bridges	20.2	29.7	+58
Highways	57.9	127.0	+75
Earthwork, Waterways	38.5	52.7	+114
Buildings:			
Public, Excl. Housg.	51.3	88.7	−26
Public Housing	5.0	5.8	−52
Private Housing	50.7	125.0	−24
Commercial	17.8	27.2	−28
Industrial	96.9	152.1	+177
Unclassified	22.5	68.6	−22
U. S. Total	$376.1	$699.8	+12

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

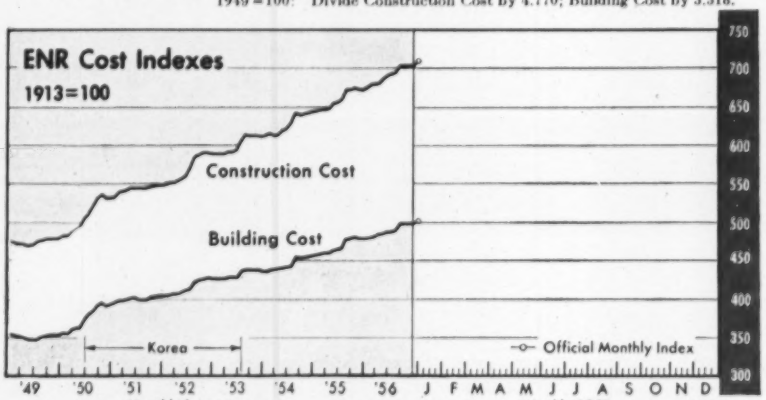
	Week of Jan. 3	Cum. 1 wk 1957	Chge '56-'57 %
	millions		
Corporate Securities	$33.8	$33.8	+8350
State and Municipal:			
All Except Housing	19.7	19.7	−38
Housing	...	.....	..
Federal Loans	2.7	2.7	−32
Federal Aid	...	.....	..
Total Nonfederal	$56.2	$56.2	+54
Federal Appropriations:			
In U. S.	...	.....	..
Outside U. S.	...	.....	..
Total New Capital	$56.2	$56.2	+54

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of Jan. 3 1957	% Change from Dec. 13 1956	% Change from Jan 5 1956
Construction Cost	707.90*	+0.4	+4.3
Building Cost	501.96*	+0.5	+4.1

* Official Monthly Index for January 1957.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



WAGE RATES, 20-cities' average	January 1957	% Change from Dec. 1956	% Change from Jan. 1956
Common	$2.212	+0.9	+5.0
Skilled (average 3 trades)	3.458	+0.7	+4.9
Bricklayers	3.731	+0.6	+4.8
Structural Ironworkers	3.442	+0.9	+4.9
Carpenters	3.201	+0.7	+4.9

MATERIAL PRICES, 20-cities' average	January 1957	% Change from Dec. 1956	% Change from Jan. 1956
Structural Steel (average 3 mills), per cwt.	$5.000	0	+8.7
Lumber, 2x4 Fir, per M fbm	116.138	−0.5	−2.6
Lumber, 2x4 Pine, per M fbm	102.800	−0.1	+1.8
Cement, bulk, per bbl	3.851	+2.1	+4.8
Sand, per ton	2.431	+0.5	+2.4
Ready-mixed concrete, per cu yd	13.471	+0.5	+4.2
Gypsum sheathing, ½"x2'x8', per Msf*	62.491	+0.4	+1.3
Fiber board sheathing, ½", per Msf*	70.514	+0.7	+2.1
Mineral wool insulation, 3' batts, per Msf*	71.184	0	−2.5
Crushed stone, 1½" per ton, CL	2.807	+0.5	+2.9
Concrete blocks, sand gravel, 8"x8"x16", each*	0.226	0	+2.7

	December 1956	% Change from Nov. 1956	% Change from Dec. 1955
Brick, common, per M*	$37.187	0	+6.6
Lime, hydrated finishing, per ton, CL	34.803	0	+5.9
Structural clay tile, 3x12x12 in., per M, 2,000 up*	175.447	0	+4.8
Vitrified clay sewer pipe, std. 12 in., per ft*	1.269	0	+8.2
Concrete sewer pipe, 12 in., per ft*	1.140	0	+9.9

* Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost 1913 = 100	Construction Cost 1949 = 100	Building Cost 1913 = 100	Building Cost 1949 = 100	Volume 1913 = 100	Volume 1949 = 100
1956						
Jan	676.36	141.79	480.48	136.58	645	186
Feb	680.21	142.59	483.08	137.32	736	213
Mar	680.20	142.59	483.14	137.34	786	227
April	683.28	143.24	485.56	138.02	764	221
May	688.43	144.32	487.36	138.54	684	198
June	692.13	145.09	488.70	138.92	636	184
July	694.75	145.64	489.23	139.07	740	214
Aug	696.31	145.97	491.22	139.63	583	168
Sept	704.91	147.77	500.10	142.16	580	168
Oct	703.88	147.56	499.54	142.00	729	211
Nov	704.13	147.61	500.58	142.27	542	157
Dec	703.82	147.55	500.17	142.18	624	180
1956 Average	**692.37**	**145.14**	**490.76**	**139.50**	**671**	**194**
1957						
Jan	707.90	148.40	501.96	142.69	...	...

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Homebuilders Attack Credit Curbs

Homebuilders sounded a battle cry last week for their 1957 fight on the Federal Reserve Board's "tight money" policy.

Joseph B. Haverstick, president of the National Association of Home Builders, called for:

- Congressional action to raise the interest rate on Veterans Administration-guaranteed mortgages to the same level as the new Federal Housing Administration rate.
- A Congressional look at the Federal Reserve monetary policy—and an investigation into the need for a revision of the 40-year-old Federal Reserve System.
- The possibility of using selective credit controls to minimize the impact of tight credit on the homebuilding industry.

Homebuilders must be alert and aggressive in meeting the needs of a buyers' market for housing, Haverstick said. They have a responsibility to provide "well-designed, well-built and well-located homes at a price the home-seeking public can afford to pay."

But, Haverstick added, the financial community also has a responsibility to provide mortgage credit to potential home buyers at a fair price.

During most of 1956, banks, savings and loan associations, insurance companies and other mortgage lenders were reluctant to make loans on FHA-insured mortgages because they felt the return on their investment was not in line with yields available on other loans, Haverstick pointed out.

"Now that FHA has increased its interest rate on these loans," Haverstick said, "it would appear that lenders have a public responsibility to step forward and support this program. . . ."

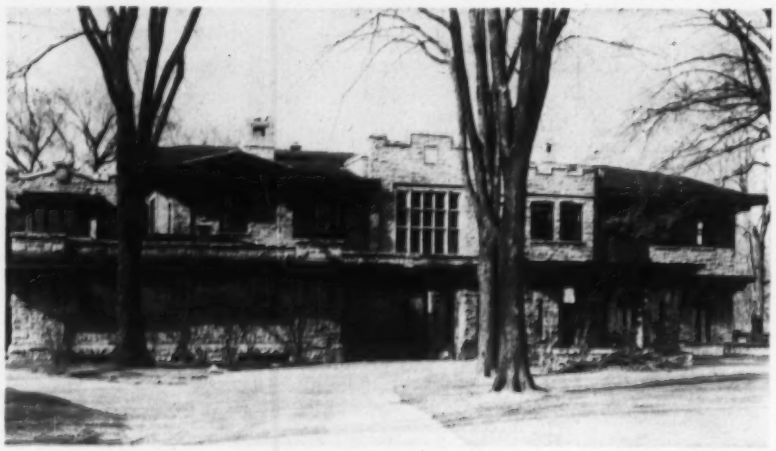
• **Easy terms**—"The low down-payment, long-term mortgage program provided by the FHA insurance plan is essential to a healthy housing market," Haverstick said, "because low and moderate-cost housing must be financed for families of moderate means if we are to maintain a volume production housing industry."

Tied in closely with this contention was Haverstick's call for an early increase in the interest rate on VA guaranteed home loans. Unless this rate is raised to the same level as that permitted on FHA mortgages, the GI housing program "will collapse altogether," the homebuilders' president asserted.

• **Score Federal Reserve policy**—The homebuilders also launched another sharp attack on the tight money market which ensued because of the Federal Reserve Board's anti-inflationary credit policies.

Haverstick then stepped onto controversial ground with a statement that "some type of legislation may be necessary to prevent the kind of dislocations which have occurred in the past year, **perhaps by selective credit controls** or similar devices which could even out the impact of tight money and accompany FRB policies."

He said the present policy of the Federal Reserve Board "imposes unnecessarily severe hardships on home buyers and homebuilders without curbing the activities of the large corporations which have certainly had little trouble in obtaining almost unlimited amounts in order to finance their expansion."



CORE OF A NEW CAMPUS for the University of Michigan will be the mansion owned by the late Henry Ford. Along with the mansion and several other buildings, the university also received as a gift Ford's 60-acre Fairlane Estate and 150 acres of adjacent land. A second automotive fortune was involved in a similar gift last week to Michigan State University.

Michigan Colleges Get Gift Campuses

Corporate aid to education is acquiring a new meaning in the State of Michigan because of two recent "give-aways" involving Detroit automobile fortunes.

Ford Motor Co. led the way in late December when Henry Ford II announced the company would give the Fairlane Estate of the late Henry Ford and $6.5 million in cash to the University of Michigan for use in developing a new campus at Dearborn, Mich.

In addition to classrooms, laboratories and shops, the new Dearborn center would have a library, lecture rooms, faculty offices and student service facilities. In all, an estimated 216,000 sq ft of floor space will be needed.

The university, a state school, received a total of 210 acres of land in the gift. This includes the 60-acre Ford Fairlane Estate and an adjacent tract of 150 acres.

An even larger land gift was made last week by Mr. and Mrs. Alfred G. Wilson, who announced they are giving their 1,400-acre Rochester, Mich., estate and $2 million in cash to Michigan State University.

Mrs. Wilson is the widow of John F. Dodge, founder of Dodge Brothers and creator of one of the great fortunes in the automobile industry.

The estate, which will provide a new campus for MSU, is valued at $3,000 an acre. It includes a 200-room mansion long considered one of the finest private residences in the world. The $2-million will be used to construct new buildings.

The campus probably will be used for a basic college and engineering branch of Michigan State University.

Within steps of world-famous "Hollywood and Vine" is a striking new Pacific Coast landmark . . . Capitol Records' revolutionary $2,000,000 circular office building . . . another outstanding example of design flexibility made possible with reinforced concrete. The structure, composed of a *reinforced concrete* cylinder thirteen stories in height and ninety feet in diameter, rises above a rectangular one-story base. This unique design achieves substantial economies in construction, operation, and maintenance because stairs, elevators, washrooms, and duct shafts are located in the central core.

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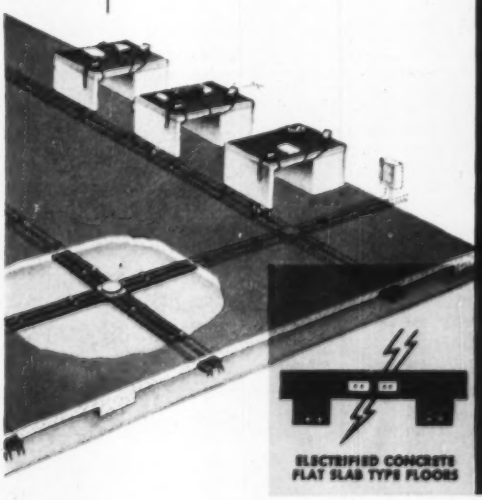
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Construction Year Ends on Strong Note

The 1956 heavy construction boom wound up with a bang. December contract awards racked up the second highest volume on record for the month, on a weekly average basis.

Awards reported to ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY last month averaged $398 million a week, 15% above November and 17% higher than December 1955.

It was the best December on the books since 1950 when the $1.25-billion Savannah River atomic energy project award helped set the all-time record for the month.

A sharp rise in private construction contracts and a rise in federal awards sparked the upturn in December lettings.

Private industrial building awards rose to a weekly average of just under $100 million. It was the fastest weekly pace for this category since July 1956. And, commercial building contracts chalked up a thumping $63-million per week average, double the rate of commercial awards during November and the largest volume of commercial awards for any month in the record books.

In contrast, private mass housing awards in December skidded to the lowest level since August 1954 (just before the 1954 Housing Act touched off the easy-credit housing boom of 1954-55).

Seasonal factors pushed state and municipal contracts down to the lowest point since February 1956. All major types of public works were lower than in November with the exception of earthwork-irrigation-drainage and unclassified construction. Increases in these two categories accounted for the rise in federal contracts during the month. But despite the percentage gain, dollar volume of federal work was unimpressive.

• **All regions gain**—Although the gains were not uniform, all regions did better in contract award volume in 1956 than in 1955.

"Hottest area" in the 1956 construction derby was the Far West which pulled far out in front—percentagewise—with a 41% increase over 1955. Substantial percentage gains also were posted for the South, up 27%, and New England, up 20%.

In dollar volume, the Middle Atlantic states continued to dominate the U. S. construction scene. These states had an aggregate dollar volume of $5.6 billion in contract awards for the year, up 12% over 1955. The total set a new dollar record for the Middle Atlantic region; it also became the largest annual total ever posted for any of the six U. S. regions.

The West of the Mississippi and Middle West regions ended the year in a close finish for second and third places. The West of the Mississippi area had an 8% increase during the year for an aggregate of $4.4 billion, while the Middle West reported $4.2 billion in new contracts, up 10% over 1955.

With the sole exception of the South, every one of the six regions set a new record for the dollar value of contract awards. The South's total was the fourth best in the region's history.

Costs Climb

Indexes reach new high as the new year opens with cement, wage increases

ENGINEERING NEWS-RECORD's 20-cities Building and Construction Cost Indexes this month climbed to new records as the new year ushered in a wave of cement price increases, scattered increases for lumber and some wage boosts for the building trades.

Cement prices were up in a dozen cities; lumber was higher in three and wage increases for the building trades were reported in six cities.

Under this pressure, the ENR Construction Cost Index moved up four points to 708 (based on 1913 equals 100) and the ENR Building Cost Index rose two points to 502 (also based on 1913 equals 100).

These increases pushed the Construction Cost Index 4.3% above the year-ago value. The Building Cost Index is 4.1% higher than a year ago.

The new cost rise abruptly ended a

Engineering Construction Contracts December 1956

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000

Four Weeks—Thousands of Dollars (000 Omitted)

	December, 1956							U. S. Cumulative Twelve Months		% Change	Canada December
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1956	1955	'55 to '56	1956
Public Works											
Waterworks	118	4,501	767	3,441	9,613	2,276	**20,716**	**356,453**	314,157	+13	1,346
Sewerage	724	9,458	455	13,635	3,703	2,010	**29,985**	**578,795**	401,859	+44	9,511
Bridges	691	1,848	4,358	8,100	5,810	3,466	**24,273**	**611,551**	542,835	+13	280
Earthwork and waterways	5,523	9,415	7,373	10,757	14,914	3,941	**51,923**	**729,523**	546,123	+34	9,244
Streets and roads	7,003	38,326	17,963	21,071	40,185	38,767	**163,315**	**2,474,613**	2,136,669	+16	7,435
Public buildings, residential	1,388	10,094	3,327	8,271	. . .	. . .	**23,080**	**317,779**	246,159	+29	3,753
Other public buildings	6,752	47,445	21,115	27,954	28,939	28,104	**160,309**	**2,099,455**	1,740,505	+21	6,895
Unclassified	7,148	25,786	13,555	6,544	18,522	6,668	**78,223**	**1,053,462**	1,121,486	− 6	1,252
Total Public	**29,347**	**146,873**	**68,913**	**99,773**	**121,686**	**85,232**	**551,824**	**8,221,631**	**7,049,793**	**+17**	**39,716**
Federal government (included in above classifications)	11,705	13,278	27,891	17,808	33,810	16,337	**120,829**	**1,688,678**	1,634,757	+ 3	7,517
Private											
Bridges	. . .	5,800	162	. . .	. . .	. . .	**5,962**	**10,366**	2,728	+280	. . .
Industrial buildings	8,468	69,576	55,890	145,980	78,354	38,415	**396,683**	**5,334,782**	2,950,778	+81	2,810
Mass housing	5,571	116,791	17,985	53,629	35,448	22,403	**251,827**	**5,306,784**	6,138,412	−14	10,866
Commercial buildings	10,664	169,563	26,894	16,322	29,276	20,268	**272,987**	**2,051,103**	1,655,549	+24	14,062
Unclassified	. . .	100	761	10,297	92,864	6,927	**110,949**	**787,315**	924,592	−15	1,250
Total private	**24,703**	**361,830**	**101,692**	**226,228**	**235,942**	**88,013**	**1,038,408**	**13,490,350**	**11,672,059**	**+16**	**28,988**
Total Engineering Construction:											
December, 1956—4 weeks	**54,050**	**508,703**	**170,605**	**326,001**	**357,628**	**173,245**	**1,590,232**	. . .	. . .	. . .	**68,704**
November, 1956—5 weeks	85,981	416,165	185,978	366,704	478,623	202,272	**1,735,723**	. . .	. . .	. . .	152,156
December, 1955—5 weeks	116,102	381,933	190,758	424,079	388,669	191,510	**1,693,051**	. . .	. . .	. . .	457,386
Twelve Months—1956	**1,108,234**	**5,595,803**	**2,556,205**	**4,624,892**	**4,732,484**	**3,094,363**	. . .	**21,711,981**	. . .	**+16**	**2,110,661**
Twelve Months—1955	926,654	4,999,508	2,012,558	4,187,827	4,395,448	2,199,857	. . .	. . .	18,721,852	. . .	2,159,472
% Change '55 to '56	+20	+12	+27	+10	+8	+41	. . .	. . .	. . .	. . .	−2

four-month period of relative stability during which wage increases were offset by declining lumber prices.

Mill price increase for portland cement, higher freight rates and automatic wage boosts were responsible for the latest cost rise.

• **Cement prices jump**—Portland cement prices were marked up 15 cents a barrel (in bulk) in Atlanta, Birmingham, Chicago, Cleveland, Detroit, St. Louis and San Francisco.

In Philadelphia, bulk cement prices moved up 23 cents a barrel; Minneapolis had a 19-cent a barrel rise.

Smaller increases were reported in New York and Boston (up eight cents) and Baltimore, up four cents a barrel.

• **Lumber prices up**—Tighter freight rates are included in some of these cement price increases. The higher freight rates also are responsible for Douglas fir price increases of $2 to $3 per Mftbm in Boston, St. Louis and San Francisco.

Southern pine prices moved up $2 per Mftbm in St. Louis, the only city reporting a change in pine prices.

The latest increase in fir lumber prices nudged the ENR national average price for Douglas fir 2x4s to $116.14 per Mftbm, highest since early December but still below the record high of $123.17 posted in mid-May of 1956.

The U.S. average for southern pine 2x4s is $102.80 per Mftbm, highest since late November. But that also is below the record. Highest pine prices on the books were recorded in late July of 1956.

• **Deferred wage increase**—Another factor that helped to push the cost indexes higher was wage rates. Previously-negotiated deferred pay increases went into effect Jan. 1 for three skilled trades in New York and for various trades in five other cities.

The pay raises ranged from 10 cents to 25 cents an hour, for the skilled trades. Common labor rates went up from five to 10 cents an hour in two cities.

Denver bricklayers won a 12.5 cents an hour increase. Other pay boosts: New York bricklayers, 21 cents; New York carpenters, 10.8 cents; New York ironworkers, 10.9 cents; St. Louis bricklayers, 9.7 cents; Philadelphia structural ironworkers, 25 cents; San Francisco carpenters, 10 cents; Seattle carpenters, 14 cents; New York common labor, 5 cents; Seattle common labor, 10 cents.

Wage rates are running about 4.5% to 5% above the year-ago levels.

Construction Markets

An On-the-Spot Report From Tulsa

Tulsa, Okla., homebuilders are being forced out of the market by tight mortgage money, but contractors specializing in other types of construction are optimistic as the new year begins.

"The mortgage market has hit rock bottom in Tulsa," Charles McKinney, executive secretary of the Tulsa Home Builders Association, reports.

Builders don't see any possibility of improvement in the mortgage money market for at least three or four months, McKinney said. However, if it should improve by then, home-building will pick up slightly for the rest of the year, he added.

Architects and contractors specializing in commercial and industrial building predict this type of construction will continue at a high level, although part of this optimism is based on availability of steel and other materials.

One of the largest builders in Tulsa told ENGINEERING NEWS-RECORD that the first question that occurs to contractors when they are asked to bid on a commercial or industrial job is whether the building will have a steel frame. The next question is whether the steel will be available.

Tulsa's Chamber of Commerce, through its Industrial Department, predicts that industrial expansion will reach an all-time record in 1957. Nearly $50 million worth of expansion already has been announced.

Architects say that nearly $10 million worth of new commercial buildings will reach the contract stage within the next three or four months. Most of this volume will be in small office buildings.

The largest contract will be approximately $4 million for a new St. Francis Hospital. Another large contract to be let early this year is approximately $2.5 million for a six-story wing to be added to the Hillcrest Medical Center.

The Air Force also has allotted $6.7 million for additional facilities for the Douglas Aircraft Co. plant in Tulsa for production of the C-132 cargo carrier plane. This plane is scheduled to be in full production by this fall.

Largest single project under way in the Tulsa area is a $40-million expansion of the Public Service Co. electric power plants. PSC also plans to spend another $20 million for a new power station in the area.

The Public School System has announced plans for 39 schools to cost about $45 million. This construction will be over the next five years. It has not been indicated yet how much of this work will be put under contract early this year.

Work also is progressing on the U.S. 66 bypass which will connect the Turner Turnpike west of Tulsa and the new 100-mile Northeast Turnpike from Tulsa to Joplin, Mo. The $43-million Northeast Turnpike is expected to be completed in June; it has the same target date for the bypass.

More than $2 million worth of contracts for grading, drainage and surfacing of about six miles of the bypass remain to be awarded.

Street construction inside the city limits includes $8 million worth of work on streets, trunk sewers and traffic signal lights.

On the homebuilding scene, part of the pessimism stems not only from the tight money market but other factors as well including increased costs of labor and materials.

Homebuilders claim that Veterans Administration and Federal Housing Administration appraisals have not kept up with these higher costs. Builders also are forced to pay discounts on money averaging about 7%.

Increased costs of labor and materials have eaten up the narrow profit margins in some cases and has discouraged builders from maintaining previous volume rates.

Housing officials say the picture is very dark; homebuilders are "dropping out like flies." Men are withdrawing from the market until such time as financial and cost conditions improve.

Across the board, for homebuilding, for commercial and industrial building, and for public works, the supply of labor apparently raises no problems in Tulsa.

Summing it up, with the sole exception of homebuilding, Tulsa looks like a strong construction market throughout the early part of 1957 and probably for the balance of the year as well.

Tollroad Trouble

Future financing policy of the Connecticut Turnpike depends on legislature

The Connecticut Turnpike financing problem was marked for top priority consideration by the state legislature when it convened yesterday.

The $445-million expressway has been in financial trouble since late October because the tollroad bonds, carrying a legal maximum interest rate of 4%, could not be sold in the present bond market.

An Oct. 30 bond sale was postponed because of market conditions, and, the proposed $75-million offering was trimmed to $54 million and offered for sale Nov. 20.

When the issue failed to draw a single bid from bond houses (ENR Nov. 29, 1956, p. 77), Governor Abraham Ribicoff called an emergency meeting of the Connecticut Expressway Bond Commission to chart the tollroad's financial future.

This group and other advisors drew up a list of alternatives that the legislature now will consider. These alternatives are:

- Increase the present 4% interest limitation on the turnpike bonds.
- Issue "full faith and credit" bonds instead of turnpike revenue bonds.
- Authorize a below-par sale of future turnpike bonds.
- Defer the first bond issue call.
- Transfer funds from the highway fund or from the state's general highway fund bond issue accounts to the turnpike project.
- Expand the state's authority to issue short-term notes for the turnpike.

• **Construction continues**—Despite the emergency nature of the legislative considerations, construction work on the turnpike is continuing. Officials estimate that funds on hand will carry the construction work through March.

Funds available for payouts represent the balance of a series of previous bond sales, totaling $200 million.

Some state officials have protested that many of the financing proposals suggested to the legislature by the governor's advisors will increase the overall cost of financing to the state.

However, the governor has insisted publicly that the turnpike must be completed by the end of 1957 and that work must not be permitted to slacken.

Financing Aid

Federal help sought for sale of local bond issues

The Governor of Florida has asked President Eisenhower for federal assistance in marketing bonds to finance state and local public works projects.

He asked the President to call a conference of all state governors to discuss possible creation of a federal corporation that would purchase state and local bond issues at an interest rate not to exceed 3½%.

Florida has been hard hit by the tight money market. Financing problems have delayed start of construction on major highway and school projects.

Investment capital that ordinarily would flow into the municipal bond market has been attracted now into the corporate securities field, the governor said, where interest rates are higher. He added that states and cities cannot afford to pay interest rates that would be competitive with the yields on corporate securities.

"I think it is imperative," the governor said, "that the federal government be of practical assistance to the states in this tight-money crisis. It seems to me it would be proper for the federal government to make investments in state or local securities provided there is a shortage of available private capital, the bonds purchased are sound and secure and the projects to be financed are recognized as having broad national, as well as local concern."

He suggested to President Eisenhower that it might be feasible to set up a federal corporation that would purchase state and local bonds at a limited interest rate. But, he added, there were other possible approaches to the problem and for that reason urged the President to call a governors' conference.

Design Approved for Federal Building

The Capitol Commission of Fine Arts has approved the final design of the south and west facades of the new $54.7-million State Department Building in Washington, D. C.

This sketch shows the west elevation of the building with the 23rd St. entrance to the auditorium that will be used for international conferences.

General Services Administration is supervising private architects' preparation of construction drawings and specifications.

The plans are being drawn by an architectural joint venture including Graham, Anderson, Probst & White, Inc., of Chicago and Harley, Ellington & Day, Inc., of Detroit, with the firm of A. R. Clas, of Washington, as associate architect.

Business Briefs . . .

• **Steel expansion**—Bethlehem Pacific Coast Steel Corp. will start work this spring on a $25-million expansion and modernization program to increase the capacity of its Seattle steel plant by 70%. The expansion will enable the company to turn out new grades and sizes of steel, to offer Northwest construction and manufacturing industries an opportunity to obtain more of their steel from a local source.

• **Bond sale planned**—California will sell $50 million worth of bonds Jan. 16 to continue the state's program of veterans' farm and home loans. This is part of the $500-million authorized by voters in November to continue the 35-year-old farm and home loan purchase program for veterans of World War I, and World War II, and the Korean War.

• **Smaller Factories**—Within the next 50 years, factories will be much smaller than today's giant plants, according to Ralph D. Cross, an executive of the Cross Co., pioneer producers of special machine tools and machinery for automation.

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Plumbers Study Welfare Funds

Union disclaims any interest in a national fund for its members but asks that local welfare plans be both sound and effective

A national policy on negotiated health and welfare plans has been adopted by the plumbers union as a guide for its affiliated locals in setting up soundly conceived and administered plans with useful benefit structures.

The policy is contained in a set of recommendations submitted to the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry by the union's National Committee on Health and Welfare Fund Research.

According to the committee, 106 funds, benefiting 116,570 union members and their dependents, now exist among UA locals. Employer contributions approach $20 million a year. Although the type of benefits vary from fund to fund, those variously provided for in existing plans are hospital expenses, surgical expenses, loss of time benefits, medical expenses diagnostic and X-ray benefits, supplementary accident benefits and accidental dismemberment and death benefits.

• **A local enterprise**—In presenting its recommendations, the committee restates the UA's approach to welfare funds. "Establishment of a national health and welfare fund for all members of the United Association," it states, "has never been the aim or intention of the General Officers or of the Committee." Union locals are considered the normal units for setting up welfare funds but the committee does suggest that locals too small to establish a sound and effective fund consider setting up a joint fund with neighboring locals.

The committee is not disturbed by the administrative problems that arise under the system of local funds when a covered member performs work in or moves to the jurisdiction of another local; it suggests that employer contributions be made to the fund of the local union having work jurisdiction over the work in question and that transfers of payments and benefits be handled by reciprocal agreements between affected locals.

Because of variations in local needs, conditions and preferences, the committee makes no recommendations as to how benefits should be provided. It notes, however, that the following types are in general use: cash insurance benefits through group policies of private insurance carriers; cash benefits paid directly by the fund; medical and hospital benefits under Blue Cross and Blue Shield type plans; group practice prepayment plans either on a clinic or comprehensive basis; and union-owned service organizations for clinical or comprehensive care. The committee found that most UA plans use group insurance underwritten by private insurance companies, and that Blue Cross and Blue Shield are used in a minority of cases.

• **Ethics**—Ethical standards of administration are incorporated in the recommendations and these follow closely the rigid standards adopted by the AFL-CIO. Some are specifically drawn from the "AFL Guides for Administration of Health and Welfare Funds." In general, trustees—both labor and management—are urged to "assume direct and active supervision over all phases of fund management and control," to serve without compensation and to have no "compromising ties" with outside interests. Investments should be made "in accordance with applicable legal requirements," the committee states, and trust accounts should be audited preferably semi-annually, with full reports to all interested persons.

In discussing a number of specific recommendations on the type of benefits that should be provided, the committee places considerable emphasis on the need for a realistic approach to the value of benefits, to the desirability of affording protection during illness of prolonged duration, and to providing adequate loss of time benefits. For the purposes of uniformity, the committee urges that all plans establish as a condition of eligibility a maximum work period of three months' employment or 420 hours' contribution, and that workers remain eligible for benefits for at least three months after their covered employment ends.

State AFL to Reconsider Its Rejection of Merger

The Executive Board of the North Carolina Federation of Labor (AFL) has called a special convention to be held in Charlotte, N. C., Jan. 26 to vote on a new plan for merger of the state AFL and CIO forces.

At its regular convention in August, the federation rejected a merger proposal, due largely to the opposition of the building trades (ENR Aug. 30, 1956, p. 77). Prior to that convention, the State Building and Construction Trades Council had turned thumbs down on the merger by a vote of two to one.

If the AFL approves the new plan, a special convention of the CIO will not be necessary. The CIO Executive Board already has the necessary authority to proceed with the merger.

W. Millard Barbee, president of the state federation, has reported "much less opposition" to the merger now than existed in August. Barbee is slated to become president of the merged federation.

Under the AFL-CIO constitution, state AFL and CIO organizations are given until next December to complete their mergers. President George Meany has previously indicated that the AFL-CIO will step in and complete the mergers in those states where the state groups have been unable to get together before the deadline. At the end of the year, the number of states in which mergers was completed stood at 19.

State Highway Commissioner Defends Wage Determination

South Carolina's State Highway Commissioner, C. R. McMillan, has declared that the determination of prevailing wages for interstate highway construction within the state is progressing satisfactorily and will not hinder or delay work under the federal highway program.

The statement followed a prediction by Robert Patten, managing director of the Carolinas Branch of the Associated General Contractors of America, that contractors wouldn't be able to bid on projects because of incomplete or inadequate wage determinations. The law requires that prevailing wages as determined by the Secretary of Labor after consultation with state highway departments be paid on highway projects in the interstate system.

McMillan said that the U.S. Department of Labor and South Carolina highway officials have agreed on wages "fair to both workers and contractors." He conceded, however, that "some small difficulties exist" but expressed confidence that "they will be overcome easily."

Patten charged the Labor Department determinations failed to cover wages in many categories of highway and bridge construction.

(*Labor continued on page 108*)

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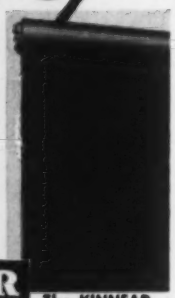

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Labor Posts Filled

O'Connell, McGuiness get labor and NLRB vacancies

Two federal labor posts were filled by President Eisenhower last week. James T. O'Connell was named Under Secretary of Labor and Kenneth C. McGuiness was appointed temporary General Counsel to the National Labor Relations Board. At the same time, Secretary of Labor James P. Mitchell announced that he had been invited to —and would—remain in his present post.

O'Connell, who holds a degree in civil engineering from Columbia University, succeeds Arthur Larson, who is now Director of the United States Information Agency. In recent years, O'Connell has been associated in various capacities with the nation's manpower problems, serving as a consultant to the U. S. Department of Labor and as a member of the civilian advisory group to the Secretary of the Army. Prior to his appointment, he was with the Publix Shirt Corporation, New York, N. Y., as vice president in charge of industrial relations.

McGuiness, the NLRB appointee, temporarily takes over the General Counsel's duties from which Theophil C. Kammholz who recently resigned for "personal reasons" after completing less than two years of his four-year term. McGuiness joined the legal staff of the NLRB in 1954.

Jobless Benefit Coverage Is Extended in New York

Effective Jan. 1, New York State employers with two employees became subject to the state's unemployment compensation system. The extension of jobless insurance coverage was the second step in a program that brought three-employee firms into the system last year.

Under the present law, an employer who has two employees, even though the second employee may be hired for only a single day, becomes liable for the unemployment insurance tax for at least a full calendar year. The tax rate for newly-covered employers is set at 2.7% for the first two years, after which they may be able to qualify for reduced rates.

Commenting on the change in the law, State Industrial Commissioner Isador Lubin last week said the legislature will be asked this year to extend coverage to single-employee firms. He estimated the 1957 change will add 200,000 more workers to the system.

First quarterly payroll reports and tax payments will not be due from newly covered employers until April 30, but liability for record maintenance accrues immediately. The law requires that payroll records be kept for six years. Employees coming under the law for the first time will not be eligible for benefits before May 12 because of the 20-week qualification period.

Overdue taxes accumulate interest charges at the rate of 9% a year. Delinquent firms must make up all back payments due from the date they became liable for the tax. Penalties for failure to file reports when due include fines and imprisonment. Fines in New York City last year ranged from $10 to $250.

Bricklayers Protest the Use of Aluminum Curtain Wall Panels

A local of the bricklayers union has protested use of metal panels in building construction unless masonry backing is provided for the panels.

The incident occurred in Tonawanda, N. Y., where the Niagara Mohawk Power Corp. had requested a variance from the town's industrial building code to permit it to use aluminum panels in a new facility under construction.

The local's business agent objected to the granting of a variance without providing for the use of masonry backing. A stop order halting use of the metal panels was granted by the Tonawanda Building Department. The Building Board of Appeals reserved decision on the dispute.

The union assured the Board of Appeals that it is "not against metal panels as such, but against them when they are used without masonry backing." Use of metal panels without such reinforcement, the union spokesman said, has caused loss of work for many bricklayers.

TVA Construction Workers Get New One-Year Contract

The Tennessee Valley Authority and Tennessee Valley Trades and Labor Council have reached a new labor agreement increasing the rates of 8,000 construction and maintenance workers an average of 14.27 cents an hour.

The prevailing hourly increase under the new one-year contract is 12.5 cents.

Drivers (over 65,000 lb) won the highest increase—42.5 cents. Bricklayers were next with 22.5 cents, followed by Class B operating engineers and painters with 20 cents, and boilermakers, lathers and medium and heavy drivers, who won 15 cents. The smallest increase—5 cents—went to plasterers.

Hoffa Influence May Spread Over Teamsters in New York

Martin T. Lacey last week declined for personal reasons to be a candidate for reelection to the presidency of the teamsters Joint Council 16 in New York City. His refusal to run again may open the door for greater influence over New York's 125,000 teamsters by James Hoffa, the influential mid-western figure in the teamsters union.

Lacey, who has held the $25,000-a-year post since 1951, will remain president of the Central Trades and Labor Council and vice president of the State Federation of Labor.

The council presidency was the object of a bitter legal contest last year between Lacey and John J. O'Rourke, who reportedly had the backing of Hoffa in his efforts to wrest control of the local teamsters from Lacey. A number of the ballotts cast for O'Rourke, who was ostensibly elected, were challenged by Lacey but were declared valid by the international union. O'Rourke seized the president's office and Lacey, on the grounds of fraud and collusion, sought and obtained an injunction in Federal District Court and thus retained his post. O'Rourke is again a candidate for the council's presidency. And it looked, following Lacey's withdrawal, as if his election was virtually assured.

Still undetermined is the status of seven teamster locals, hastily chartered prior to the election but never accredited by the council. Tied into the history of six of these is the controversial figure and friend of O'Rourke, Johnny Dio, now awaiting trial on charges of complicity in the blinding of labor columnist Victor Riesel.

State Labor Group Prepares To Fight Right-to-Work Law

The California State Federation of Labor has committed its "total resources" as well as those of its affiliates to the repeal of the right-to-work ordinance in Palm Springs, Calif.

The ordinance—first of its kind in the nation—became effective Dec. 15. Like state right-to-work laws, it forbids the imposition of union membership as a condition of employment.

Condemning the ordinance as an "unwarranted interference" by local government in labor-management relations, the State Federation of Labor has also agreed to sponsor a fund-raising campaign to finance a legal challenge of the ordinance.

The action was taken by the federation's Executive Council at its quarterly meeting last month.

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Boycott Case Ends

Cisco Construction Co. wins $75,000 in damages

A contractor whose Nike projects near Seattle were involved in labor disputes two years ago was awarded a $75,000 judgment by the U. S. District Court for the Western District of Washington, on Dec. 29.

The award was made by Judge George H. Boldt to Cisco Construction Co of Portland, Ore., against the carpenters, teamsters, operating engineers and street pavers unions.

The company had sought damages in the amount of $104,050, contending that picketing by the unions prevented subcontractors from delivering materials to projects near Redmond and Lake Youngs and caused delay in completing the projects. Judge Boldt upheld Cisco's contention that the picketing constituted a secondary boycott, prohibited by the Taft-Hartley Act.

Picket lines were established at the sites by the carpenters in the fall of 1954 in a dispute over travel allowances and health and welfare contributions sought by the union. Picketing, however, was not confined to the Cisco projects. Jobsite and roving picketing were legal, said Judge Boldt, but the unions erred in "inducing and encouraging" employees of Cisco's subcontractors to "engage in a strike or concerted refusal to work." The court quoted from a National Labor Relations Board decision that picketing of the subcontractors" was conducted, at least in part, to force those secondary employers to cease doing business with Cisco."

In his decision, Judge Boldt stated that "unlawful and concerted activities of defendants contributed directly, substantially and proximately to non-performance of Cisco's subcontractors," putting Cisco to an expense estimated by the court at $75,000.

Cisco's subcontractors were Cadman Gravel Co. of Redmond; Western Sand & Gravel Co. of Maple Valley, and Layrite Concrete Products Co. of Seattle.

Uniform Working Conditions Proposed by Canadian Group

Standardization of working conditions for the various building trades has been suggested by organized construction workers in southern Alberta, Canada.

Preparatory to 1957 contract negotiations, the Calgary Building Trades Council has submitted to the memberships of its affiliated unions draft proposals for standardizing working conditions. Unions affected include bricklayers, carpenters, operating engineers, painters, asbestos workers, electricians, plumbers, laborers, plasterers, iron workers, sheet metal workers, teamsters and lathers.

A spokesman for the building trades group stated that standardization would benefit both members and employers because existing variations in working conditions have caused confusion and dissatisfaction in the past.

Carpenters, for example, working on last Remembrance Day, were held up because electricians and plumbers were not on the job. When one group on a construction project receives holiday pay while other groups on the same project do not, discord develops. There are also marked differences in travel-time pay.

Wages, under the standardization proposal, would remain unaffected and would continue to be a matter for negotiation by individual unions.

Social Security Up

New tax rate stems from the disability provision

Labor costs were pushed up again last week when employer contributions for social security purposes rose to 2¼% on the first $4,200 of an employee's earned annual income. The 1957 increase flows from the disability provision written into the law by Congress last year.

Opposed by the Administration, the action was applauded by the AFL-CIO as a "major step forward" and the labor federation already has recommended that a more liberal disability provision —which would mean another tax boost —be enacted.

Workers who have been totally disabled are entitled under the 1956 amendment to receive social security benefits at the age of 50. A six months' qualification period is imposed. The new taxes—an increase of one-fourth percent for employers and employees alike—will be used to finance the program.

The extension urged by the AFL-CIO would provide protection against income loss from temporary disability due to illness or accident. The safety-conscious AFL-CIO Building and Construction Trades Department has estimated that in the construction industry alone there were 201,000 accidents in 1955 from which the injured completely recovered but through which they suffered serious economic loss.

A Boycott Festers

Sheet metal workers spark dispute with steelworkers

A dispute between members of the sheet metal workers and steelworkers unions has led to the boycotting of jobs on which products of an Akron, Ohio, manufacturer are used and threatens to delay the merger of AFL and CIO on state and local levels.

The sheet metal workers union has refused to recognize the steelworkers union, which has a contract with Burt Manufacturing Co., producer of ventilators for commercial and industrial use. It has termed the company a "nonunion shop" and has boycotted jobs where the products are used. According to the company, installation of its products has been stopped at Firestone Tire and Rubber Co., Akron, and at Ohio Bell Telephone Co., Mogadore.

Representative William Ayres of Akron said he plans to press for a full-scale Congressional investigation of the situation. And David J. McDonald, President of the steelworkers union, has disclosed that AFL-CIO President George Meany has agreed to put the matter on the agenda of the federation's Executive Council, which will meet in Miami, Fla., Jan. 28. According to McDonald, earlier efforts to have the sheet metal workers withdraw their insistence that contractors buy equipment made in shops under their jurisdiction have been a total failure.

Meanwhile, an Akron delegation of the CIO plans to introduce a resolution this week at the Ohio CIO Council Convention in Cleveland opposing merger of the AFL and CIO in Ohio until the dispute is settled. The Burt boycott is also said to be blocking merger of the Akron CIO Council and the Akron Federation of Labor.

Labor Briefs . . .

• **Jobless benefits**—Unemployment compensation payroll taxes of 28,000 employers in Michigan went up one-half percent last week, when the solvency account balance of the state system fell below the legal limit. The hike was attributed to an excess of benefit charges over contributions.

• **Prevailing wages**—When Gov. George Leader addressed the opening of the Pennsylvania legislature on Jan. 1, he called for a state law that would "require the payment of prevailing wages on all public contracts, just as the federal government has done for more than two decades."

Bids: January 29, 1957

Power Authority of the State of New York

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CONSTRUCTION OF THE 230 KB
TRANSMISSION LINE BETWEEN
BARNHART ISLAND AND
PLATTSBURGH NEW YORK
SPECIFICATION NO. PA-6-25
CONTRACT NO. T2

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the complete installation of the 230 kv transmission line between Barnhart Island and Plattsburgh, New York, until 10:30 **A.M. Eastern Standard Time** on the 29th day of January, 1957, at the Authority's office, 270 Broadway, Room 1305, New York, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are estimated:

587 wood pole structures of various types—poles, spar arms, cross and "K" braces furnished by the Authority.
872,000 pounds steel tower structures—structural steel and accessories furnished by the Authority.
71 miles of stringing—transmission line conductors and overhead ground wires furnished by the Authority.
furnished by the Authority.

The length of the project is 71 miles.
The work shall be completed on or before September 1, 1958.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York, New York, upon application and prepayment of a fee of Ten ($10.00) dollars for initial set and Five ($5.00) dollars for each additional set, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
General Manager

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO BUILDING CONTRACTORS: Sealed proposals for the construction of a Highway Administration Building for District 4 on Route 2 in LEXINGTON will be received at Room 427, 100 Nashua Street, Boston, Massachusetts, until 2:00 P.M. of TUESDAY, JANUARY 29, 1957, and at that time and place publicly opened and read. Copies of sub-bids shall be filed by Sub-contractors and shall be in the possession of the Department at the above address by 12 o'clock noon of TUESDAY, JANUARY 22, 1957. Charge for plans, specifications and other documents: $25., amount returnable only to bidders. Certified checks required for proposal guaranties: GENERAL CONTRACTORS — $21,000. — SUB-CONTRACTORS: Water-proofing, Damp-proofing and Caulking $200., Aluminum Windows $650.—Aluminum Entrances $350., Roofing and Flashing $450., Acoustical Tile $400., Tile and Terrazzo $150., Resilient Floors $150., Lathing and Plastering $300., Painting $400., Glazing $200., Miscellaneous and Ornamental Iron $1100., Electrical $1200., Plumbing $1300., and Heating $2000. Complete information at said office. Minimum wage and dump-truck rates have been set. Bids shall be prepared and considered and the contract awarded in accordance with statutes governing such contracts (GL. Chap. 149 as amended by Chap. 679 of the Acts of 1956). Forms on which bids must be submitted will be furnished by the Department and they shall be obtained at 100 Nashua St., Boston, Mass., Room 427. Right reserved to reject any and all proposals. An award will not be made to any contractor who is not equipped to undertake and complete the work as specified. By: CARL A. SHERIDAN, Commissioner of Public Works.

December 29, 1956

Bids: February 11, 1957

Reconstruction of Sewers

VILLAGE OF ENDICOTT
POLLUTION ABATEMENT PROGRAM
RECONSTRUCTION OF
HARRISON AVENUE SEWERS
NOTICE TO BIDDERS

1. Sealed proposals for performing all work in connection with the Reconstruction of Harrison Avenue Sewers, are hereby invited and will be received by the Board of Trustees until 5:00 P.M. o'clock, Eastern Standard Time on February 11, 1957 in the Council Chambers, Village Hall, Endicott, New York and there publicly opened and read immediately thereafter.

2. The work will consist of providing all labor, materials, equipment and incidentals and performing all operations required for the construction, complete and ready for municipal operation, of the new Sewer Lines and Structures, and the removal of existing sewer lines and structures and all related work, as specified.

3. Drawings, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Leonard S. Wegman Co., Grand Central Terminal Building, New York 17, N. Y., or at the office of the Village Engineer at Village Hall and obtained from the latter at a deposit of $15 per set. Full refund will be made to actual bidders for return of each set in good condition within two weeks after closing date for receipt of bids.

4. Each bid must be accompanied by a Bid Security in the form of a certified check payable at sight to the Village of Endicott in an amount not less than Ten Percent (10%) of the amount of the total bid. Such Bid Security will be returned to all except the three lowest formal bidders within (5) days after the formal opening of bids, and the remaining Bid Securities will be returned within two (2) days after the Owner and the accepted bidder have executed the contract, or if no contract has been executed, within thirty (30) days after the date of opening of bids, upon demand of Bidder at any time thereafter, so long as he has not been notified of acceptance of his bid. If the Bidder to whom the contract is awarded does not execute the contract and furnish the required bond within fifteen (15) days after receipt of notice of award, the aforesaid Bid Security shall be paid to the Village of Endicott as liquidated damages.

5. The Village reserves the right to reject any or all bids, to waive any informality in bids received and to accept that bid which in its judgment best serves the interests of the Village.

BOARD OF TRUSTEES
By: C. Burdette Parkhurst, Mayor

December 26, 1956

Bids: January 23, 1957

Washington Suburban Sanitary Commission

CONTRACT NO. 1927
SALE OF SALVAGED EQUIPMENT, SUPPLIES AND MATERIALS FROM ROCKY GORGE DAM

Sealed proposals to purchase used construction equipment, 1 Blaw-Knox 4 compartment 120 ton capacity batching plant, 1 T. L. Smith, size 28S (1 cu. yd.) Model 508, tilting building mixer, 2 Steel Masts, 100' long, 4 60' wooden cable-way poles, 2 I-R Wagon Drills and 1 Shovel front complete for P & H Model 255A shovel, and various items of equipment, supplies and materials used in construction of Rocky Gorge Dam, will be received in the office of the Secretary of the Commission at 4017 Hamilton Street, Hyattsville, Maryland, until Wednesday, January 23, 1957 at 12:30 P. M., Eastern Standard Time, at which place and time they will be publicly opened and read.

A complete list of equipment, supplies and materials may be obtained at the office of the Chief Engineer with a copy of the proposal forms.

T. Earle Bourne, Chairman
Frank L. Hewitt, Jr. V-Chairman
J. Norman Ager
James B. Bland
Willard A. Morris
L. S. Ray
Commissioners

Attest:
John T. Bonifant
Secretary

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, P.O. Box 12, New York 36, N. Y.

Bids: January 31, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 31st day of January, 1957, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Schenectady and Montgomery (Rt. 88)	FARC 57-8	Amsterdam-Pattersonville, S.H. 8338 Rotterdam Junction-Pattersonville, S.H. 640 Project U-F-488(7)	5.88 (0.95 RR)	9" Cem. Conc. Pavt. 24' Wide = 5.81 Mi.; Misc. Work = 1.02 Mi.; Prestress. Conc. Beam Bridge 60'; Extend. Exist. 22' Reinf. Conc. Slab	$82,000 Plans $25	$1,486,000
DISTRICT No. 3, Wm. Robinson, Weigh Lock Bldg., Syracuse, N. Y.						
Onondaga and Oswego	FISH 57-3	Interstate Route 5 (Brewerton to Central Square) and Access or Local Roads Project I-1118(4)	3.32 (1.01 Acc.)	9" Cem. Conc. Pavt. 2 at 36' Wide = 2.92 Mi.; Asp. Conc. Opt. = 0.38 Mi.; Asp. Conc. Opt. Access = 1.01 Mi.; Misc. Work = 0.02 Mi.; 3 Hy. Sep. Comp. I-Beams, 244.9', 90' & 127.6'; 1 Br. St. Arch & C.I.B. 448'	$360,000 Plans $50	6,520,000
Onondaga (Rt. 5)	FARC 57-9	Fayetteville Village: Genesee St., S.H. 5660 Project F-329(7)	0.25 (0.11 Int.)	9" Cem. Conc. Pavt., 50' Wide = 0.12 Mi.; Asp. Conc. Ty. 1A = 0.24 Mi.; Comp. I-Beam Bridge 260.5'	$24,000 Plans $10	434,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Livingston (Rt. 36)	FARC 57-103	Caledonia-Mount Morris, Pt. 4, S.H. 5665 Project F-1053(4)	0.30	9" Cem. Conc. Pavt., 24'-36' Wide = 0.29 Mi.; Misc. Work = 0.01 Mi.; Continuous Girder Bridge 340'	$30,000 Plans $15	547,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court Street, Buffalo, N. Y.						
Erie	FI NTC 57-11 PSC 9058	New York State Thruway—Niagara Section, Sub. N5; Elim. of the Grade Crossing of the New York Central Railroad and Porter Avenue: City of Buffalo Project I-865(13)	1.92 (0.92 Acc.)	R.R. Relocation = 1.25 Mi.; 9" Cem. Conc. Pavt. Var. Wide = 0.77 Mi.; Asp. Conc. Opt. = 0.59 Mi.; Misc. Work = 0.23 Mi.; R.R. & Hy. Sep. Comp. I-Beam, 192.5'; Ramp Comp. I-Beam, 223'	$75,000 Plans $25	$1,383,000
Erie	BIST 57-9	Connection between New York State Thruway-Niagara Section, Sub. N-8 and Base Line Road (Buckhorn Island State Park)	1.18	Asp. Conc. Opt. = 1.16 Mi.; Misc. Work = 0.02 Mi.; Comp. I-Beam Bridge, 60'	$10,500 Plans $15	$188,000
Erie (Rt. 5)	FAC 57-1 FAC 57-2	City of Lackawanna: Arterial Route. Fuhrmann Blvd.-Hamburg Turnpike Viaduct and City of Buffalo: Arterial Route. Project U-750(7)	0.77	Substructure for Viaduct	$160,000 Plans $25	$2,936,000
DISTRICT No. 6, James H. Thomas, District Engineer, 30 W. Main Street, Hornell, N. Y.						
Alleghany (Rt. 19 and 244)	FARC 57-4	Friendship-Belmont, S.H. 5341; Belmont-Scio, S.H. 5476; Belmont-Phillips Creek, Pt. 1, S.H. 1559 Project F-332(7); F-514(4)	2.85	Asp. Conc. Opt.; Cl. Box Br. 22'; Repair Exist. Rig. Conc. Arch Br.; Reinf. Conc. Slab Br. 32'; Raise & Repair Exist. Truss Br.	$42,000 Plans $15	$770,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 VanDuzee St., Watertown, N. Y.						
Jefferson	FISH 57-2 FARC 57-15	Interstate Route 5 (Section 7C-1) and Access or Cross Roads including S.H. 425 and S.H. 237 Project I-IG 1118(5); F-327(10)	7.26 (6.79 Acc.)	Asp. Conc. Ty. 2B = 0.21 Mi.; Asp. Conc. Opt. = 13.23 Mi.; Grad. & Drain. = 0.61 Mi.; 1 RR Sep. Comp. I-Beam, 140'; 4 Hy. Seps. Comp. I-Beam, 237.3', 149', 355.2' and 205.8'; 4 Brs. R.C. Twin Boxes 20' Each.	$395,000 Plans $100	$7,182,000
Lewis	FASS 57-13	Remington Corners-Indian River-Croghan, Pt. 2, Co. Rd. Project S-337(2)	5.37	Bit. Mac. Ty. 1 Pen. Meth. Pre-Stressed Conc. Beam Br., 180'	$38,000 Plans $25	$700,000
DISTRICT No. 8, K. G. Rauer, Acting District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Putnam (Rt. 9)	FARC 57-3	Peekskill-Fishkill, Pts. 3 and 4, S.H. 5156-5149 Project F-394(15)	4.06	Asp. Conc. Opt.	$19,000 Plans $10	$340,000
Rockland	HT 57-1 RC 57-1	New York State Thruway—Hudson Sect.—Sub. 9A and New Jersey State Line-Nyack, Pts. 3 & 4, S.H. 8136-5682	3.20 (1.52 Acc.)	Asp. Conc. Shoulders = 3.94 Mi.; 9" Cem. Conc. Var. Wide with A.C. Should. = 0.24 Mi.; Asp. Conc. Opt. and Misc. Work = 0.17 Mi.; Misc. Work = 0.37 Mi.	$18,000 Plans $10	$317,000
Ulster (Rt. 55)	RC 57-5	Napanoch-Montela, S.H. 603	3.70	Cable Guide Railing (RR Rail Posts)	$4,000 Plans $10	$75,000
Ulster (Rt. 55)	FASH 57-1 FARC 57-10	Gardiner-Kerhonkson, Pt. 3; Gardiner-Kerhonkson, Pt. 2, S.H. 8339. Project F-451(4)	1.61	Asp. Conc. Opt.; 1 Comp. I-Beam Br. 255'; 2 Reinf. Conc. Box Brs, 25.1' and 21.6'	$40,000 Plans $15	$723,000
Westchester	NET 57-1	New York State Thruway—New England Section—Sub. NE 3 (N.Y.N.H.&H.R.R. at Larchmont)	0.85	Modifications of R.R. Facilities and Re-routing of Communication Lines	$12,000 Plans $25	$220,000
Westchester (Rt. 9)	FARC 57-2	Peekskill-Fishkill, Pt. 1, S.H. 5147 Project F-394(14)	1.67	Asp. Conc. Opt.	$8,500 Plans $10	$156,000
DISTRICT No. 10, M. E. Goul, District Engineer, 328 W. Main Street, Babylon, L. I., N. Y.						
Bronx	FA MDE 57-2	Major Deegan Expressway & Extension (Cont. 19) (138th St. to N. Y. City—West. Co. Line). Project U-1082(23)	7.33	Miscellaneous Work	$11,000 Plans $15	$200,000
Suffolk (Rt. 27)	RC 57-6	Amagansett-Montauk Point, Pt. 2, S.H. 8381	7.49	Timber Guide Railing	$4,200 Plans $10	$78,000
Suffolk (Rt. 25, 25A, 111)	FARC 57-7	Smithtown-Port Jefferson, S.H. 5232A; East Islip-Smithtown Branch, S.H. 1208. Project S-430(3)	2.81	Asp. Conc. Opt. = 2.62 Mi; Misc. Work = 0.19 Mi.	$40,000 Plans $15	$742,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: February 5, 1957

Contract TA-260.001

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
TETERBORO AIRPORT
HANGAR NO. 15

Sealed proposals for the construction of Hangar No. 15 at Teterboro Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, February 5, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 10 1957

Bids: January 29, 1957

Contract NYA-180.002

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
OPERATIONS-CARGO BUILDING
CENTRAL OFFICE FOR TOLL
REGISTRY EQUIPMENT

Sealed proposals for the construction of a central office for toll registry equipment, including the installation of utilities therefor, in the Operations-Cargo Building at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 29, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 10, 1957

Bids: February 5, 1957

Contract PN-340.006

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BUILDINGS NOS. 290, 291, 292 AND
WHARF
BUILDINGS, PAVING AND UTILITIES

Sealed proposals for the construction of three transit sheds (Buildings Nos. 290, 291 and 292) on the North side of the City Channel at Port Newark together with paving and utilities therefor will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, February 5, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 10, 1957

Bids: February 5, 1957

Contract NYA-650.041

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CENTRAL TERMINAL AREA
FLOODLIGHTING

Sealed proposals for the erection and electrification of floodlight towers, furnished by others, including without limitation the furnishing and installation of equipment therefor, said floodlight towers to be located in the Central Terminal Area at New York International Airport, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, N. Y., until 2:30 P.M. on Tuesday, February 5, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 10, 1957

Bids: February 8, 1957

The Pennsylvania Railroad Company

Contract No. 1—Alterations to Substructure to Delair Bridge No. 2.07 over Delaware River, Philadelphia, Pa.
Notice to Contractors:

Sealed proposals for the alterations to the substructure of the railroad bridge between Philadelphia, Pa. and Delair, N. J. will be received at the office of the Assistant Chief Engineer—Construction, Room 440, Pennsylvania Station, 30th Street, Philadelphia 4, Pa., until 2:00 P.M., February 8, 1957, at which time said proposals will be opened and read publicly.

Contract documents may be seen at the above mentioned office on and after January 11, 1956. Documents will be furnished upon deposit of $10.00 per set for not more than three sets to any one company. Deposit is returnable only to bidders who return the documents in good order within one week after the opening of proposals.

The Pennsylvania Railroad Company
J. F. Piper
Assistant Chief Engineer-Construction
Philadelphia, Pa.—12/26/56

CITY OF BAGHDAD, BAGHDAD SEWERAGE BOARD, BAGHDAD DRAINAGE: CONTRACT NO. 1. The Baghdad Sewerage Board invites Tenders for the construction of the First Stage of the Baghdad Sewerage Scheme. The works to be constructed include: 1. Approximately 170 Km. of pipe sewers mostly up to 45 cm. in diameter. 2. Approximately 7 Km. of trunk sewer between 1.85 m. and 2.3 m. in diameter. 3. 15 pumping stations and associated pumping mains. 4. The first stage of the Soiada Sewage Treatment Works for a population of 300,000 persons comprising settlement tanks, sludge digestion and ancillary works. 5. Outfall to the River Tigris. The Tender Documents and Contract Drawings may be inspected during normal working hours after 7th January, 1957, at the offices of the Baghdad Sewerage Board, Baghdad, at the Royal Iraqi Embassies in Bonn and Washington and at the Royal Iraqi Legation in Brussels and Rome, and also at the offices of the Consulting Engineers, John Taylor and Sons, Artillery House, Artillery Row, London, S.W.1., and 464, Alwiyah, Baghdad. Copies of the Tender Documents and Contract Drawings may be obtained from any of the above mentioned addresses on payment of I.D. 20/—(Twenty Iraqi Dinars) or £20 (Twenty Pounds Sterling). This payment will not be returnable and must be made by check or Banker's Draft payable to the Consulting Engineers. The Tenders shall be in English and must be accompanied by a deposit of I.D. 10,000/—(Ten Thousand Iraqi Dinars) either in cash or by a letter of guarantee from any approved Bank in Iraq. The Tenders and accompanying documents must be enclosed in a sealed package, and delivered in Baghdad in accordance with the instructions contained in the Documents by 12 o'clock noon local time on the 10th day of June, 1957. During the time allowed for tendering the Baghdad Sewerage Board reserves the right to amend the documents for the purposes of clarification or modifications in design or contract conditions. Any such amendments will be notified in writing to prospective tenderers. The Baghdad Sewerage Board does not bind itself to accept the lowest or any tender.

Fakhri Al Fakhri
Chairman of the Baghdad
Sewerage Board

Bids: February 5, 1957

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the Director, Purchases and General Services, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A. M. E.S.T., February 5, 1957, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Type of Work: The work to be done is part of the Sewage Disposal Project, is entitled "Division IV—Administration Building and Sludge Structures", and comprises the furnishing of all labor, materials, equipment and work incidental thereto, for the construction of the Administration Building, the Sludge Control Building, the Sludge Tanks, and interconnection tunnel, as shown, specified and directed.

Location: The Administration Building and Sludge Structures will be located at the site of the Sewage Treatment Plant, adjacent to the southwest bank of the James River at Rockett's Wharf, northeast of the United States Naval Diesel School, in the City of Richmond, Virginia.

The proposal and other contract documents may be examined at the office of the Director of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the contract documents may be obtained from the office of the Director of Public Works upon the deposit of Twenty-Five Dollars for each set. Any general contractor who submits a bona fide bid on the project will be refunded his payment in full for not more than three sets, and will be refunded fifteen dollars per set for each additional set. All others will be refunded fifteen dollars per set upon the return of the documents in good condition within ten days after the opening of the bids.

J. W. Huffman
Director of Purchases and
General Services

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Assist. Prof.—To teach undergrad. courses in structures and applied mech. Salary depends on qualifications. Dept. of Civil Eng., Univ. of No. Dakota, Grand Forks, N. Dak.

Designers—Steel, Concrete, Electrical Piping, Air-Cond., Power Plants & Industrial Bldgs. Marbarry Corp., 120 Greenwich St., N.Y.C. Rector 2-3749.

Civil Engineers, Designers, Draftsmen experienced in the design of sewers pumping stations, sewage treatment plants, water supply systems, structural and hydraulic design, hydraulic computations, specs. O'Brien & Gere, 400 E. Genesee St., Syracuse, N. Y.

Sales Engineers to introduce outstanding product in sanitary and drainage fields. Young, aggressive, well-financed company. Salary open. Location: Gulf Coast. P-3773, Engineering News-Record.

Civil Engineer-Estimator: for industrial construction. Approximately 10-15 years of both estimating and job experience. Salary open, position permanent. Located in Florida. P-3632, Engineering News-Record.

Construction superintendent wanted for work in Florida to handle large highway, grading, paving and drainage projects. Must be experienced in preventative maintenance of heavy equipment. Give references and salary desired. P-3815, Engineering News-Record.

Civil Engineer, graduate, with some street and sewer layout and/or structures experience preferred but not required, as assistant to City Engineer in Pennsylvania. City of 20,000 population with up-to-date municipal utilities, including activated sludge sewage treatment plant, water works, modern incinerator. Clean college city with good government. Salary commensurate with education and experience. Send complete resume in first letter to P-3556, Engineering News-Record.

Position open with growing Midwest contractor to handle sewerage and waterworks projects, both underground and treatment plants, from estimating, bidding to completion on percentage of profits basis. Facilities available to handle 3-4 million dollar volume yearly. Build your income as high as your ability. Send qualifications to P-3636, Engineering News-Record.

Technical Editor to handle extensive publications program of international engineering organization located in Maryland, near Washington, D. C. Well-rounded background and experience in technical editing, printing and publications production essential. Write submitting full resume and desired starting salary. P-3902, Engineering News-Record.

Civil Engineers for design and construction of municipal and industrial sewerage, treatment and water supply projects. Old established consulting firm in Midwest has openings in permanent staff. Please send full information and references. P-3899, Engineering News-Record.

Graduate civil engineers about 30 years of age wanted for work in Midwest. Require experience in control of concrete. Some experience in control of soils or bituminous mixes highly desirable. $7,500-$9,000 range. P-3867, Engineering News-Record.

Field Office Engineer-Tunnel Contractor desires engineer to handle office engineering at job site in connection with project in New York State now getting under way. Please state age, qualifications and references in application. All correspondence will be considered confidential. P-3873, Engineering News-Record.

2 Civil Engineers for sales work in heavy construction. Soil Mechanics background desirable. Must be willing to travel. Good future. Midwest area. P-3877, Engineering News-Record.

WHEN *Answering Advertisements*

PLEASE *do not send original letters, certificates or photographs. We cannot be responsible for their return. Please send photostat or carbon copies.*

POSITIONS VACANT

Structural Design Engineer. Opportunity for capable man to grow with progressive engineering firm designing all types of reinforced concrete and steel-frame buildings. Minimum 3 years experience. Replies treated confidentially. Write Stuart H. Snyder, Consulting Engineer, 321 Denison Bldg., Syracuse, New York.

EMPLOYMENT SERVICES

Salaried Positions $6,000 to $35,000. We offer the original personal employment service (established 46 years). Procedure of high standards individualized to your personal requirements. Identity covered. Particulars—R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo 3, N. Y.

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L. P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Civil Engineer: Five years experience in field on bridge, highway and airfield construction. Particularly strong in concrete. Seek interesting and responsible position. Available Feb. 15. PW-3784, Engineering News-Record.

Engineers' Representative (and Architects). Save time, money on East Coast jobs through professional N.Y. representative. PW-3769, Engineering News-Record.

Drill Foreman: Recent, extensive Air Trac experience. Free to travel. Good references. PW-3812, Engineering News-Record.

Experienced Engineer-MASCE, BS and MSCE —35 years broad experience in investigations, reports, design, specifications and supervision of construction of water supply, water treatment, storm and sanitary sewers, sewage treatment, pumping stations and associated structures. Can work with others and can complete entire project from inception. Registered in 16 states—in excellent health—available at once. PW-3825, Engineering News-Record.

Concrete Superintendent. 32 years experience. Thoroughly experienced all phases concrete construction, batch crushing, washing plants. Precast. Placing, handling heavy foundations, highways, refineries, industrial. Coordinating all classes personnel, equipment materials Foreign or Domestic. PW-3823, Engineering News-Record.

Construction Superintendent past 2½ years on lump sum government work for Philadelphia General contractor desires job. PW-3844, Engineering News-Record.

Engineer, registered, aggressive—8 years mech-struct design and installation, desires responsible position with Engineer, Contractor, or multi-plant mfr. Present salary 8000. Request Resume. PW-3794, Engineering News-Record.

Civil Engineer SM—MIT 10 years in design and hydro and chemical plant construction. Now in Jamaica. Available May. PW-3861, Engineering News-Record.

Civil Engineering Professor available. Major interest in highway and canstruction subjects. BSCE and professional CE degrees. 22 years municipal and highway engineering and construction. 9 years teaching civil engineering. PW-3854, Engineering News-Record.

Construction Executive sound experience all phases, bid to completion, buildings and heavy construction, available as project manager, chief estimator or similar position where scope and volume require top man. Now employed. Minimum $15,000. PW-2596, Engineering News-Record.

Structural Engineer, graduate, licensed, 30 years experience in design and construction, subways, industrial buildings, waterfronts, etc., available for responsible position. PW-3867, Engineering News-Record.

Structural project engineer, 47, registered by 15 years experience in design of various types of bldgs bridges expressway and misc. structures. 10 years field experience on construction seek supervisory position Boston area preferred. PW-3874, Engineering News-Record.

Engineers Designers Draftsmen

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has immediate openings in these fields:

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—3 years min. experience on heavy industrial plant steel and reinforced concrete structure.

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—3 years min. experience in heavy industrial plant equipment layout. Experienced in mine plant, cement plant, smelter bulk material handling of special value.

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—3 years min. experience in shaft and open pit mine layout and design.

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Excellent starting salaries commensurate with ability. Liberal company benefits. Relocation Benefits. Ideal working conditions.

Qualified Applicants will be interviewed locally.

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- **WESTERN KNAPP ENGINEERING CO.**

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Civil Engineer—Six years' experience highways, drainage, grading. Supervised design and preparation contract plans. Also structural design. Desires connections with small firm having diversified civil engineering practice. PW-3868, Engineering News-Record.

Estimator, 18 years experience bidding, buying, building municipal, industrial and Federal projects. Presently located Texas. $12,000 income. Desire percent-of-profits agreement. PW-3880, Engineering News-Record.

Engineer wants to contact rated equpmt. manufacturer to build revolutionary machine in prestressing field in potentially heavy demand thruout construction industry. PW-3879, Engineering News-Record.

Equipment Superintendent—38 years experience all types equipment. Speak Portuguese, Spanish, Italian and English. Prefer Latin America. Available March 1. Free to travel. PW-3900, Engineering News-Record.

Project Manager or Superintendent available for work in Florida. Qualified and experienced all phases construction. PW-3907, Engineering News-Record.

Superintendent, heavy & bridge construction, 19 years experience, bid to completion, $200. PW-3901, Engineering News-Record.

HIGHWAY ENGINEERS

Well established consulting engineering firm located in small college community of Colorado is desirous of obtaining qualified personnel for permanent positions. Steady expansion of firms operations results in openings as follows:

One bridge engineer with previous experience in designing, supervising and coordinating staff of design engineers. Salary $7200 to $8400

One highway engineer with previous experience in designing, supervising and coordinating staff of design engineers. Salary $7200 to $8400

Three to five experienced highway structures and bridge design engineers. Salary $6000 to $7200

Three to five experienced highway design engineers. Salary $6000 to $7200

Send full resume of experience, date of availability and other pertinent data. All replies confidential if requested.

P-3843, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

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Foreign Employment
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Field Engineers with refinery or related construction experience.

Office Engineers with heavy industrial construction experience on planning, estimating, costs, material takeoff, scheduling.

No Family Housing

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Manager of Employment & Placement
Industrial Relations Division

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Opportunities for experienced men as Project Engineers, Group and Squad Leaders. Long range Interstate and Expressway Program.

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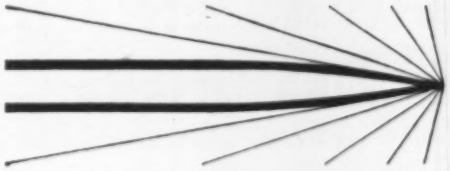

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Many new positions are being created at Northrop Aircraft for missile engineers in a wide range of activity: control, guidance, servo, computers, recording, optical, reliability, electro-mechanical, telemetering and electronics. There's an interesting position for you, at your own experience level, with attractive remuneration and steady advancement, in one of the following groups:

GUIDANCE AND CONTROLS, encompassing research and development of advance automatic guidance and flight control systems for both missiles and piloted aircraft. Specific areas of development include: radio and radar systems, flight control systems, inertial guidance systems, instrument servo systems, digital computer and magnetic tape recording systems, airborne analogue computer systems, optical and mechanical systems, and systems test and analyzer equipment.

FLIGHT TEST ENGINEERING SECTION, which plans the missile test programs and establishes test data requirements in support of the programs. The data requirements are predicated on the test information required by the engineering analytical and design groups to develop and demonstrate the final missile design, and are the basis from which instrumentation requirements are formulated.

The analysis work performed consists of aerodynamic, missile systems, dynamics, flight control, propulsion and guidance evaluation. The Flight Test Engineering Section is also responsible for the field test program of the ground support equipment required for the missile.

FLIGHT TEST INSTRUMENTATION SECTION, which includes a Systems Engineering Group responsible for the system design concept; a Development Laboratory where electronic and electro-mechanical systems and components are developed; an Instrumentation Design Group for the detail design of test instrumentation components and systems; a Mechanic Laboratory where the instrumentation hardware is fabricated; and a Calibration and Test Group where the various instrumentation items and systems are calibrated and tested.

For 17 years Northrop Aircraft has pioneered in missile research and development. As a member of this forefront organization in this growing field, new opportunities for full expression of your initiative and ability will always be yours at Northrop.

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NORTHROP AIRCRAFT, INC., HAWTHORNE, CALIFORNIA

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5A-88

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Air Mail Resume TO R. L. SHAW, Personnel Director

MICHAEL BAKER, Jr., INC.

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HIGHWAY AND STRUCTURAL ENGINEERS - DESIGNERS - DRAFTSMEN

Several years' experience in highway or bridge design work preferred but not necessary if educational background is good.

This firm of Consulting Engineers is anxious to employ men who desire long range permanent work, who want to develop as professional engineers and who are eager to accept ever increasing responsibility.

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Positions in the above categories available in permanent company offices at Chicago, New York, San Francisco, Oklahoma City and Toronto.

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A leading medium size fabricator of structural steel in the Middle West is in need of a staff assistant for the President. The man we seek is from 45 to 60 years of age, and presently employed in a capacity where he is responsible for the development of efficient manufacturing methods and procedures preferably in steel or a heavy industry. Principal activities in this position will be the initiation and development of new production methods, machinery, and equipment, and persuading others to adopt and install the changes required. Offices will be located in Chicago, but travel among the several plants of the Company will be necessary. Beginning salary will be commensurate with previous earnings and achievements. Your reply is respected and held in confidence.

P-3891, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

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with structural ability to design or modify standard designs of steel buildings for industrial and commercial use. Expansion program underway offers very good advancement possibilities in design and sales. Permanent positions in pleasant Mid-western town. Send complete resume, with salary thinking.

P-3872 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Prefer several years or more experience in any of these fields:

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BUILDINGS
EXPRESSWAYS
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TEST FACILITIES*

Will consider lesser experience with good educational background, including several recent graduates to round out a planned expansion program. Occasional openings for combination field men. These are permanent additions to our regular staffs.

We are professional engineers engaged primarily in design which covers a wide scope of practice. The variety and unusual charater—for example, the proposed world's largest bridge project—offer excellent opportunity for professional development and advancement.

Immediate openings in our St. Louis general offices and occasionally in our San Francisco branch office. Confidential interviews can also be obtained at Washington, D. C., and Portland, Oregon.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Please write fully, including salary data, to

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Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical, and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

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Your training in Stress and Weight can bring you a rewarding career

in Aircraft Nuclear Propulsion at General Electric

If you've been thinking that the development of nuclear propulsion systems for aircraft is out of your line, you've overlooked a chance to get into a fast-growing field with a wide-open future.

Your stress and weight experience and ability can be applied immediately to problems in aircraft nuclear propulsion because . . .

General Electric gives you what you need to know about the nuclear applications of your field.

. . . through a full-tuition refund plan for university courses leading to an M.S. in nuclear engineering or any other graduate degree, and in-plant training courses conducted by the top men in the nuclear field. On the job you'll work with experts who'll guide you in applying your present skill to the problems at hand.

Comprehensive employee benefit programs
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Send your resume in confidence, stating salary requirements, to location you prefer:

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Engineering graduates needed for California's growing water development program.

The work is challenging, interesting and of long range. It includes design and construction of big dams, power plants and statewide aqueduct system; water quality and flood control, and research.

The positions are open to recent college graduates in civil engineering. BSCE degree starts you at $436 a month with first raise in six months.

Promotional opportunities, on-the-job training, liberal vacations, generous retirement, and other State benefits.

For illustrated booklet and details write

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State Personnel Board
801 Capitol Ave., Sacramento, California

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BRIDGES AND EXPRESSWAYS

Opportunity for continuous employment in our Louisville, Chicago, Cincinnati or Lansing offices for graduates or engineers with practical backgrounds. Overtime allowance, vacation time and insurance and retirement plan.

Please give detailed personal and experience record, three competent references and salary expected in first letter.

Hazelet & Erdal, Consulting Engineers

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LOUISVILLE, KENTUCKY

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FOR HIGHWAY BRIDGE WORK

In New York City and New Jersey

BROWN & BLAUVELT

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44 Cooper Street, Woodbury, New Jersey

STRUCTURAL ENGINEER

Large New England fabricator has permanent position for young structural engineer—position will eventually lead to Chief of Engineering Department. Must have Conn. C.E. license or qualifications to take examination. Give full qualifications in letter.

P-3750, Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

CONCRETE ENGINEER

Wanted by large Ready-Mix Concrete supplier in northeast Ohio. Must know mix design and be able to trouble-shoot concrete. Write to following address, giving full particulars.

P-3649, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Major asphalt plant manufacturer, located in California and Illinois, expanding engineering staff seeks seasoned engineer with asphalt batch plant design experience. Permanent. Good future. Write in full. Interview in Chicago will be arranged.

STANDARD STEEL CORPORATION

Los Angeles 58, Calif.

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(Classified Advertising)

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REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
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BS degree with some experience, to make takeoffs for preliminary and engineering estimates and to price material, equipment and labor costs.

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BS degree with 5 years experience. Work will include planning and design of industrial food plants.

These are permanent positions in a field uninfluenced by world or economic conditions. General Foods new executive office is in suburban White Plains just 30 minutes from New York City.

Please send resume with salary requirements to

Mr. J. J. Conaty

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HIGHWAY DESIGNERS
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FOR HIGHWAY and BRIDGE WORK
SENIORS and JUNIORS
WORK IN RICHMOND, VA.

Send Resumes to

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728 East Main Street Richmond, Va.

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Opportunity for sales engineer work for energetic young engineer or construction man, 25 to 35 years of age for sales work in established territory with company operating on nation-wide basis furnishing metal forms for sale or rent to handle concrete forming work. General construction experience or some civil engineering training desirable. Must want to sell. Give full details of background and experience in first letter to W. H. Witt.

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P-3808, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N. Y. 36, N. Y.

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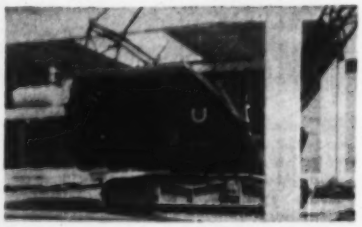

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In good condition. This is a real buy.
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Used as Demonstrator for short time. Excellent Condition.

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RELAYING QUALITY

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All available for prompt shipment

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Bay City, Lorain, P&H & Osgood Truck Cranes
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Diversions from Lake Michigan

THE LARGE TEMPORARY INCREASE IN DIVERSION of water from Lake Michigan into the Illinois-Mississippi waterway system just authorized by the U.S. Supreme Court is dramatic evidence of the critical conditions brought about by the low rainfall in much of the Midwest. The Court's action will be welcomed in the Chicago area and in Illinois, but in other areas touching on the Great Lakes the decision will not be so popular.

The Court's action reopens a long controversy that was closed in 1930 when the Supreme Court ordered Chicago to reduce its diversions from Lake Michigan progressively until the amount was down to 1,500 cfs. Previous to that time Chicago had been diverting much larger quantities of water to dilute sewage sent into the Mississippi through the Chicago and Illinois Rivers. The total amount was so large as to cause other cities on the Great Lakes to claim that the lake levels were being lowered to their detriment and to the detriment of navigation on the Great Lakes waterway system. Chicago's recent request for authority to increase its diversions has revived those old fears.

Back in the Thirties, faced with the forced reduction in the amount of water it could use for sewage dilution, Chicago began construction of sewage treatment plants and carried that work forward until today the great bulk of its sewage is treated before it is discharged into the Chicago River.

Nevertheless, because of the present low flow in the Illinois River, sanitary conditions in that stream had become unsatisfactory, which caused Chicago to ask the Supreme Court to authorize an increase in the amount of water that would be diverted from Lake Michigan. The larger flow also would help navigation in both the Illinois waterway and the Mississippi.

The Court has approved an increase until the end of January of 7,000 cfs over the 1,500 cfs Chicago now is authorized to divert for sanitary purposes, and has provided for a continuation of an increased amount if that is found to be necessary by a member of the court (ENR Dec. 27, 1956, p 21). This diversion appears to have been authorized solely as an aid to navigation in the Illinois and Mississippi systems and not for sanitary purposes although the larger flow, of course, will improve sanitary conditions very materially.

If navigation on the Illinois and Mississippi systems is greatly improved, the Supreme Court will be urged strongly to continue the increased diversion indefinitely. Strong objection can then be expected from those states, other than Illinois, that have harbors on the Great Lakes. Loud protests also can be expected from New York State which is soon to develop a large amount of power on the St. Lawrence River and has plans for a great increase in the power developed at Niagara Falls. Complicating the issues further is the fact that Canada has a vital interest both in power and navigation in the Great Lakes-St. Lawrence system. No permanent change in flow conditions in that system can be made without approval of the International Joint Commission.

In view of all these complications it is most fortunate that the whole question of diversions from Lake Michigan into the Mississippi River system is being restudied by the Corps of Engineers to see if changed conditions warrant any changes in the rules. Presumably any solution must be a compromise. But the compromise should be based on facts, not on snap judgment, fancied injury or prejudice.

No Duplication Until Needed

CANADA HAS NOW ANNOUNCED that she will not undertake, for at least 10 years, to build a canal on the St. Lawrence River roughly parallel to the Long Sault Canal now being built on the New York side east of Massena. After that, construction of duplicate facilities in this area would depend on how traffic develops on the new 27-ft St. Lawrence waterway.

This is reassuring, for fears that Canada planned to build the parallel facilities were aroused when Ottawa announced that it planned to start work on dredging a 27-ft channel on the north side of Cornwall Island (ENR Dec. 13, 1956, p. 32). That work is being undertaken now because the dredging will cost much less than it will after the powerhouse at the Long Sault Rapids is completed and in operation.

Under the legislation authorizing U.S. participation in construction of a 27-ft ship canal along the international section of the river, tolls are to be charged to make the navigation project self-supporting. No one knows how much shipping will use the waterway, although most predictions are optimistic. But until more is known about the traffic that is going to develop, nothing should be done to increase needlessly the cost of the waterway. And duplicate facilities above Cornwall certainly would do so. Yet, some people in Canada have continued to advocate construction of locks and navigable channels on the Canadian side of the International Rapids. And since all the other channels and locks between Lake Erie and Montreal are in Canadian territory, Canada thus would obtain an all-Canadian waterway over which the U.S. would have no control as to rates to be charged for its use.

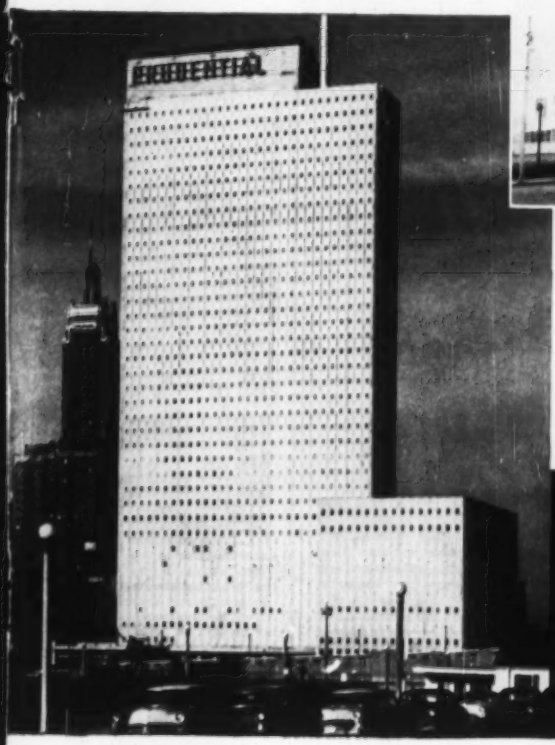
Consequently, when the Canadian government first announced that it planned to start dredging work north of Cornwall Island, it appeared as though the advocates of that plan were going to have their way. Now it is evident that this conclusion was wrong. The dredging only is being done to cut the cost of future work. Also, it will have the immediate beneficial effect of giving the Ontario city of Cornwall direct access to the new 27-ft waterway.

PRUDENTIAL

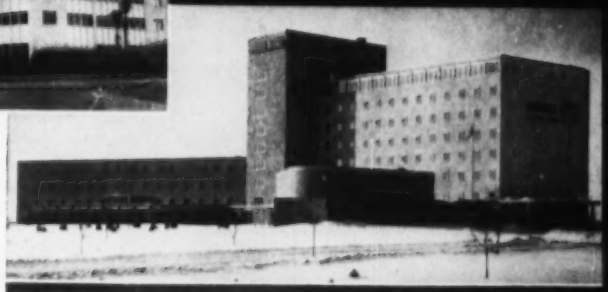
INSURANCE COMPANY OF AMERICA

Left—Prudential Insurance Bldg., Jacksonville, Fla. Archt.—Kemp, Bunch & Jackson; Contr.—Daniel Construction Co. Pozzolith Ready-Mixed Concrete supplied by Capitol Concrete Co.—all of Jacksonville.

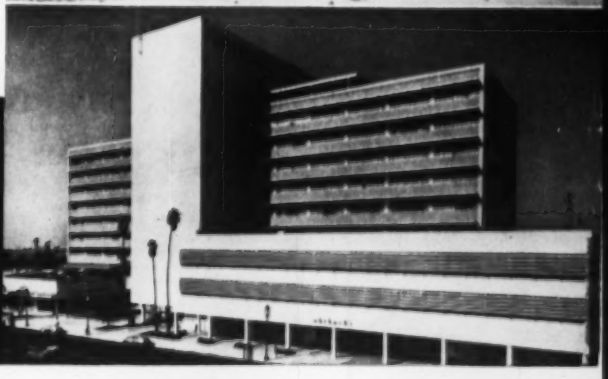
Below—Prudential Office Building, Minneapolis, Minn. Archt. and Engr. Magney, Tusler & Setter; Contr.—C. F. Haglin & Sons Co. Pozzolith Ready-Mixed Concrete supplied by Ready-Mixed Concrete Co.—all of Minneapolis.



Left—Prudential Building, Chicago, Illinois. Archt.-Eng.—Naess & Murphy; Contr.—Geo. A. Fuller Co.; Pozzolith Ready-Mixed Concrete supplied by Material Service Corp.—all of Chicago.



Right—Prudential Insurance Co., Los Angeles, Calif. Archts.—Walter Wurdeman and Welton Becket; Engr.—Murray Erick Associates; Gen. Contr.—Wm. Simpson Co.—all of Los Angeles. Pozzolith Ready-Mixed Concrete supplied by Transit Mixed Concrete Co., Pasadena.



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Laying hot-mix Texaco Asphaltic Concrete wearing surface over a sand-shell base and sand-loam sub-base on 19 miles of Texas State Route 73.

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The highway problem here was a low-bearing-value subgrade

Texas is building a shorter highway link between Houston and Port Arthur's large oil refineries. A major problem in the construction of the 19-mile section shown here was the low-bearing value of the underlying subgrade.

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